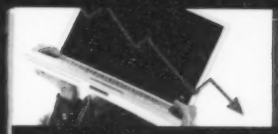

Career Watch: Analyst David Foote identifies the types of IT professionals who will survive the financial crisis. PAGE 38

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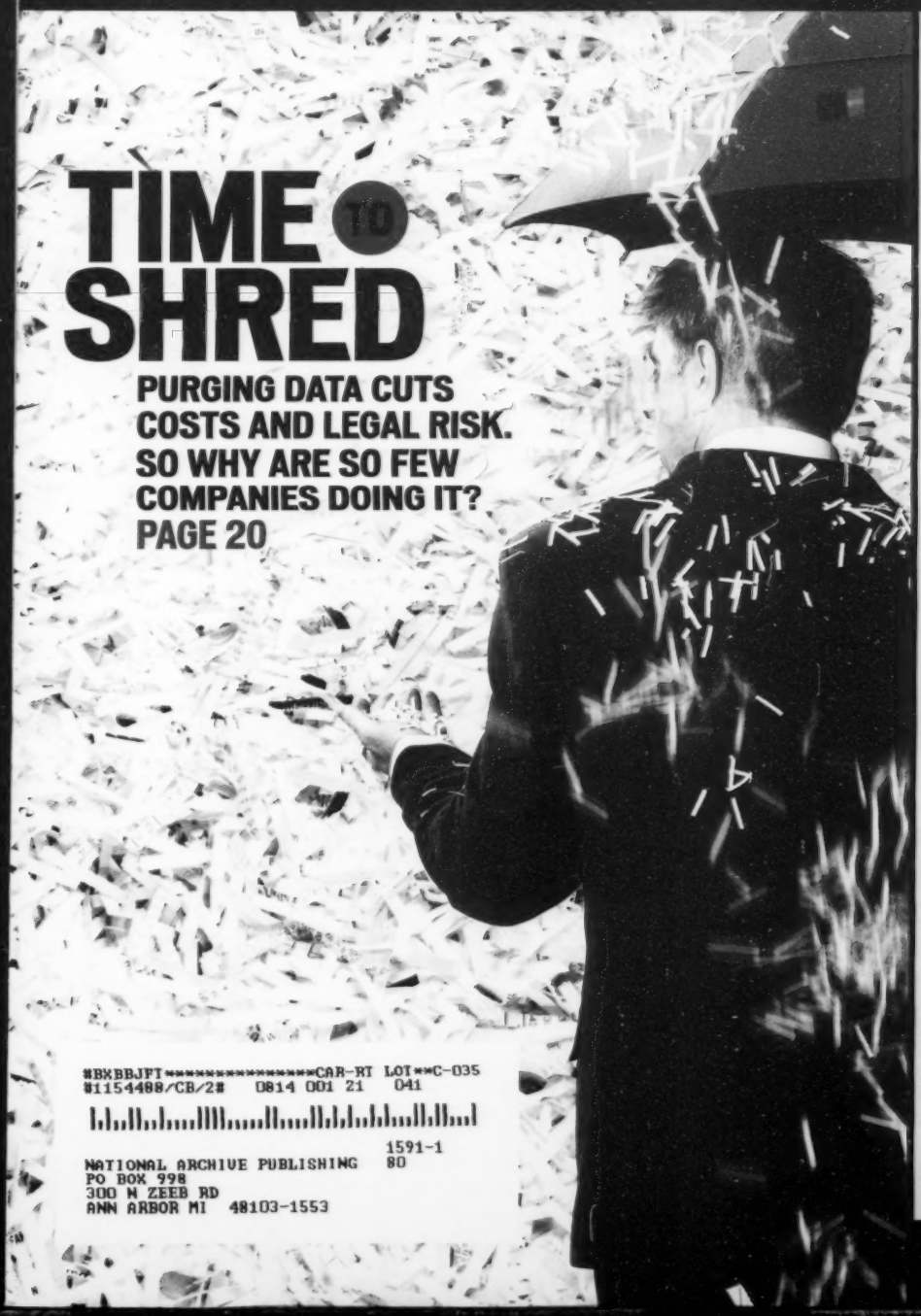

TIME TO SHRED

PURGING DATA CUTS COSTS AND LEGAL RISK. SO WHY ARE SO FEW COMPANIES DOING IT? PAGE 20

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OCTOBER 20, 2008
VOL. 42, NO. 42 $5/COPY

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Storage projects look recession-proof, thanks to the constant flow of data. PAGE 12

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4 District of Columbia CTO **Vivek Kundra** lets users choose between **Google Apps** and **Microsoft Office**. | **Teradata** offers a data warehousing appliance that can store up to **50 petabytes of data**.

6 Cisco's **TelePresence** high-end **videoconferencing** technology is now **available for public rental** in hotels and other locations.

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12 Full Speed Ahead for IT on Storage Projects, Despite Economy's Drag. Thanks to the never-ending flow of data, storage technology may be recession-proof.

■ OPINION

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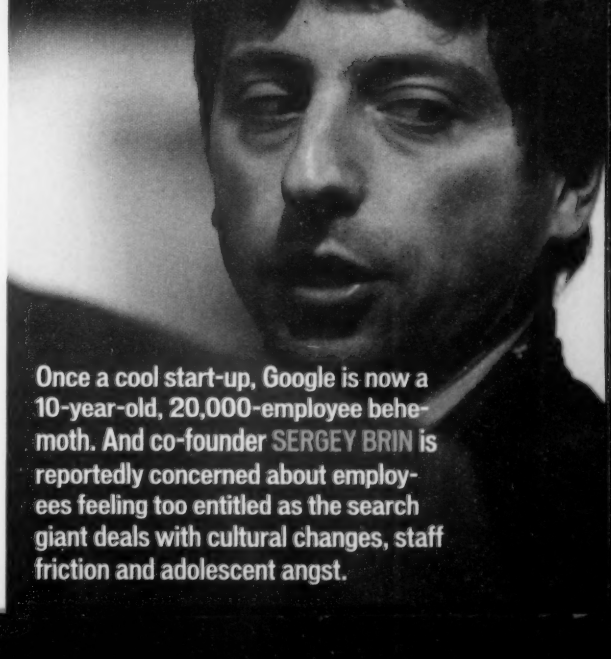
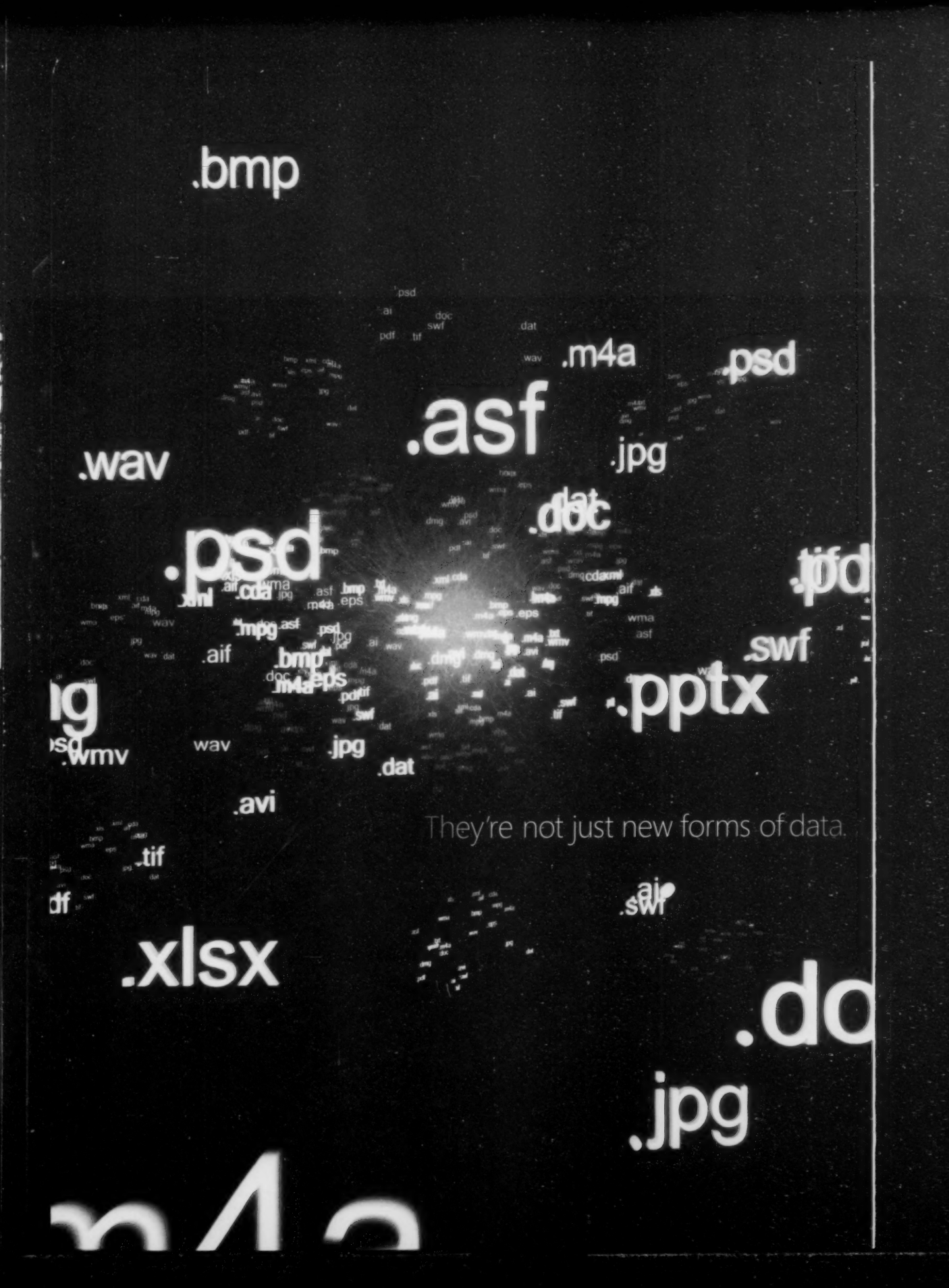


Once a cool start-up, Google is now a 10-year-old, 20,000-employee behemoth. And co-founder SERGEY BRIN is reportedly concerned about employees feeling too entitled as the search giant deals with cultural changes, staff friction and adolescent angst.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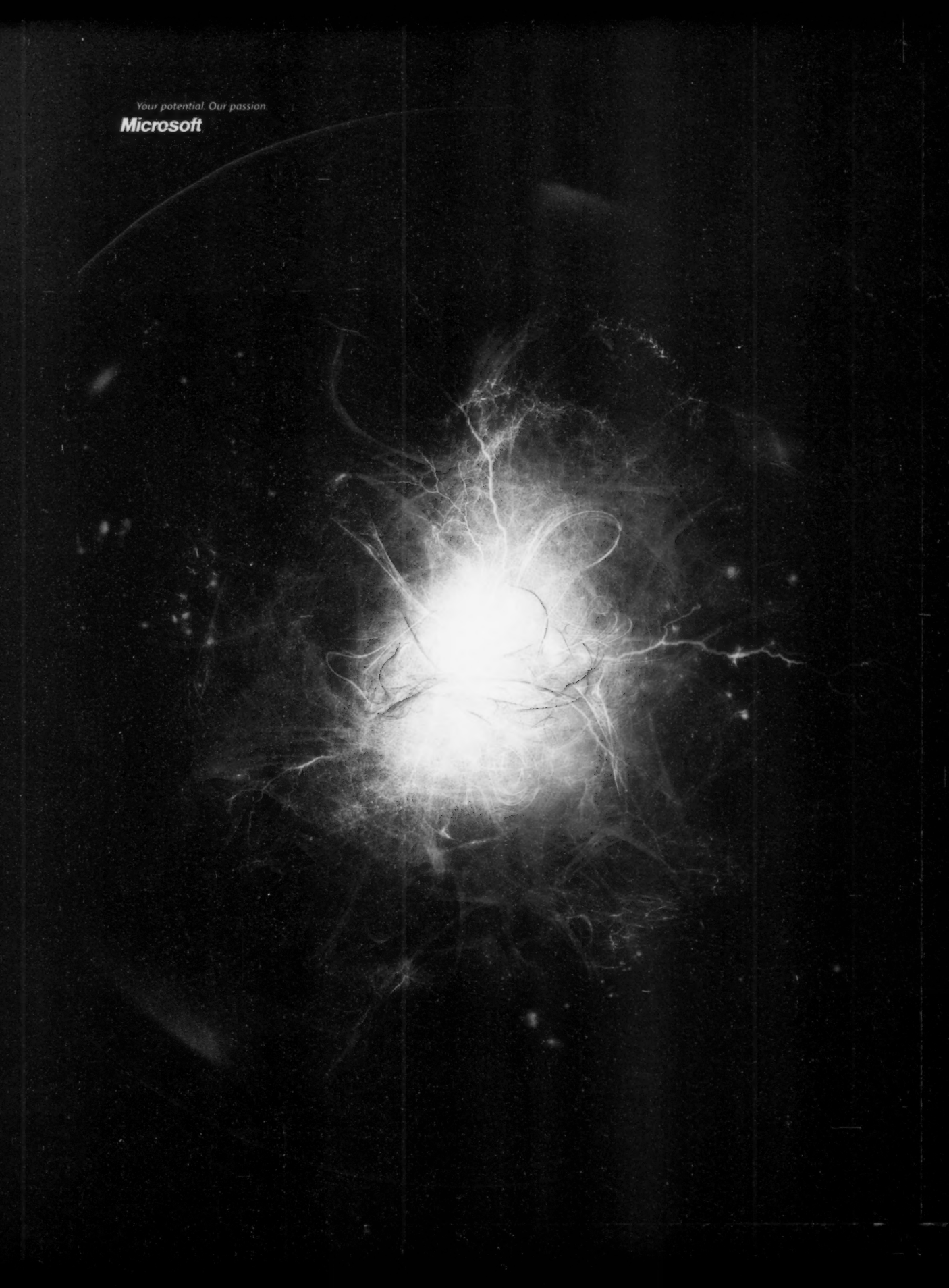

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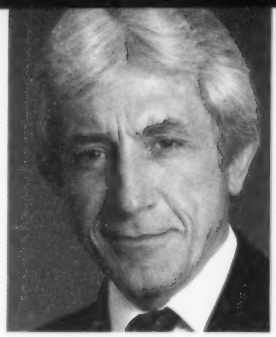
■ EDITOR'S NOTE

Don Tennant

A Dimension Lost



LAST WEEK, I had the good fortune of coming across a column written by Kip Layton Jr., a school administrator in the tiny, remote village of Eek, Alaska. It wasn't fortunate simply by virtue of the entertainment I derive from being able to mention a place called Eek. Layton's column provided a valuable insight into what our kids have missed out on by virtue of their ties to the Internet.

Obviously, access to computers in general and the Internet in particular is a godsend, and the sooner such access is universal, the better. But I was intrigued by Layton's article, in which he wrote about what happened recently when his school lost its Internet connection.

Suddenly, an ecology class being broadcast to his rural school went off the air, students felt unable to write their papers, and teachers were in a quandary without their Smart Boards (computerized interactive whiteboards). Layton lamented the cloud of helplessness that settled over the school and harked back to "a time when learning and communication had a more meaningful, personal touch."

The episode reminded me of a column I wrote several years back, titled "The Lost Art of Handwriting." That column was picked up by a number of IDG publications around the world, and I can't think of anything I've written that drew a more global response from readers who identified with my experience. Here's a lightly edited excerpt, offered as a toast to Layton's piece:

I have a 19-year-old son who is absolutely brilliant. He finished high school with a 4.0 grade-point average, scored a 1500 on the SAT, and was accepted for admission to the U.S. Naval Academy. Yet this brilliant young man has the handwriting of a 4-year-old. It's humiliating. And why is this the case? Because he grew up in front of a keyboard. Virtually everything he ever did involving the written word was typed.

If there's anything good to say about his handwriting at all, it's that it's not quite as horrible as the "handwriting" of my 14-year-old son, who has even less experience away from a computer and whose scrawl looks like he was holding the pen between his toes. With frostbite.

■ The scrawl of my younger son looks like he was holding the pen between his toes. With frostbite.

You no doubt have seen the same thing. People over 35 generally have lovely handwriting. The 25-to-35 age group has decent handwriting. And the under-25 crowd is a legibility laughingstock. It's all because of computers. And it's kind of a shame.

I had lost sight of just how much of a shame it really is until just these past six weeks since my son has been at the Naval Academy. He hasn't had access to a computer all this time, so the only way to correspond with him has been by post. I clearly could have written the letters on my computer and printed them out, but I didn't. I suppose the reason is that I can remember as a kid getting letters from my mom and dad and noticing their different styles of handwriting and appreciating that unique personal expression.

I wanted my son to see that same expressiveness and individuality and personality in my correspondence with him, so I've been writing my letters to him longhand. Six weeks ago, I probably would have said I don't have time to write letters longhand. Turns out I do.

My son will be getting his computer in a couple of weeks, and our correspondence will no doubt shift to e-mail and IM — the convenience and timeliness are just too compelling. And I probably won't get around to writing letters longhand anymore. It would be silly, I suppose, because the letters would be so dated. Too bad.

Don't get me wrong. I'm grateful that we have e-mail and IM, I really am. And it's a terrific thing that the kids in Eek have access to the Internet. But I have a feeling that, given the chance, those kids would enjoy learning about what Layton called "those little white cards in that mysterious chest in the library" as much as I loved writing those letters. ■

Don Tennant *is editorial director of* Computerworld *and* InfoWorld. *Contact him at don_tennant@computerworld.com, and visit his blog at* http://blogs.computerworld.com/tennant.

We Have to Be Able To Verify Votes

I'm with Sharon Machlis 1,000% on her e-voting column ["Let's Impeach E-voting," Sept. 8]. I have served as an election judge for 34 years, starting out with the huge mechanical lever-pull machines. Our county moved to the paper ballot with optical scanners quite a few years ago, and I feel this is a very secure, auditable and efficient system. As a professional in the networking industry who understands the benefits of well-run technology, I think you'd have to be crazy to trust your vote to an all-electronic system with no means of verification. Thanks for publicizing the issue. I hope election officials across the country are listening.

■ **Christopher G. Stevens,** *lead technical support engineer, Minneapolis*

The Human Touch

I wanted to thank Don Tennant. In writing about Sara O'Neill of Lehman Brothers, he added a human touch to the situation storming around us all ["Context of Collapse," Editor's Note, Sept. 22]. While we are all participants in the business world, it's nice when we take a few minutes and remember the humanity involved.

■ **Robert Fort,** *CIO, Virgin Entertainment Group, Los Angeles*

A School to Watch?

I read with interest your article "IT Schools to Watch" [Aug. 18]. Thanks for a well-done piece!

By definition, such listings cannot cover everything. Still, I was disappointed that our pioneering new-media grad program was not mentioned. ITP, founded in 1979, is one of the oldest such programs focusing on interaction design and the creation of new media forms — and I think we have gained a pretty good rep in the industry. While we are not strictly "IT," I couldn't help but be struck by the fact that many of the so-called IT programs you featured are being lauded for moving into cutting-edge areas like HCI and mobile phone apps — work that goes on at ITP every day. Plus, we do a whole lot more.

■ **George Agudow,** *administrative director, Interactive Telecommunications Program, Tisch School of the Arts, New York University, george.agudow@nyu.edu*

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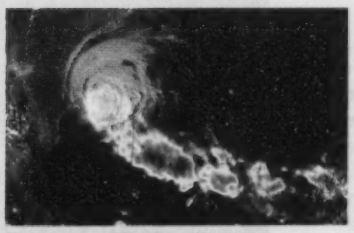
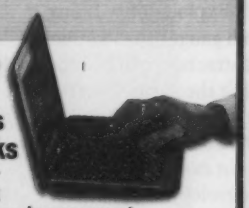


Extreme IT: Hurricanes, High Winds and Heavy Seas in the Gulf of Mexico

The IT manager for Chevron's Gulf oil platforms and support facilities talks about communications challenges in the face of salt air, lightning strikes and other weather-related hazards.



A Road Warrior's Guide to Netbooks

See a netbook in your future? Here's what to look for, whether it will be your primary computing device or a second PC for travel.

IT's Biggest Project Failures

Ballooning costs, feature creep, vendor lock-in and just plain bad technology have contributed to some of IT's most spectacular fiascoes. Find out how to learn from them.

Reactive Bystander or Proactive Partner?

You can't help your clients achieve their objectives if you don't know what they are, says former CIO Al Kuebler.

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News Digest

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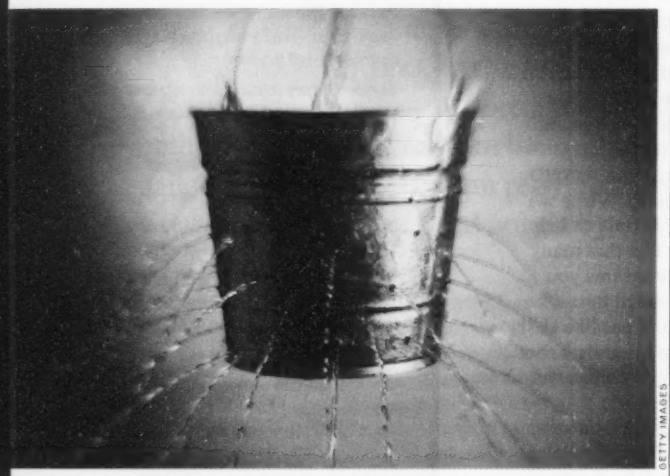
THE WEEK AHEAD

MONDAY: ARMA International, an association for records managers, begins its 53rd annual conference in Las Vegas.

TUESDAY: Apple, Yahoo and VMware are all scheduled to report their financial results for the most recent quarter.

TUESDAY: Mobile Internet World opens in Boston; the agenda includes summits on 4G technologies and mobile apps.

THURSDAY: Microsoft's latest earnings report is due.



GETTY IMAGES

SECURITY

Microsoft, Oracle Get Busy Plugging Security Holes

MICROSOFT CORP. and Oracle Corp. each dropped a bevy of software patches on their users last Tuesday, with Microsoft issuing 11 updates to plug a total of 20 security holes and Oracle releasing 36 separate fixes.

Microsoft's monthly batch of patches was designed to fix vulnerabilities in Windows, Office, Internet Explorer and other products. The company rated 11 of the flaws as "critical," its highest severity level, while eight were pegged as "important" and one as "moderate."

The patch release also marked the launch of Microsoft's Exploitability Index, which gauges the likelihood that attackers will be able to exploit the various vulnerabilities within 30 days. Eight of the 20 flaws received the highest ranking — meaning the development of consistently functional exploit code for them is likely.

Microsoft announced plans to add the exploitability predictions in August, saying that the index was designed to help users prioritize their patching plans.

But that "doesn't mean that the enterprise can do less work," cautioned Andrew Storms, director of security operations at software vendor nCircle Network Security Inc. Storms said that in the initial index, it looked like Microsoft had "put together a pretty good view into the future, based on the data they had."

Oracle, which issues its patches quarterly, released a smaller-than-usual — though still plentiful — number of fixes last week. Of the 36 flaws that were patched, 11 can be exploited remotely, the company said.

In many cases, though, companies — especially large ones — are reluctant to bring down production databases to install new patches. Many are also wary about deploying untested patches in live database environments. As a result, there is usually a considerable lag time between when a patch becomes available from Oracle and when it gets widely deployed.

In fact, Sentrigo Inc., a vendor of database security software, polled 305 Oracle database administrators between August 2007 and last January and found that two-thirds of them apparently weren't installing Oracle's security patches at all. Such practices can leave companies dangerously exposed to attacks , said Slavik Markovich, Sentrigo's chief technology officer.

— Gregg Keizer and Jaikumar Vijayan

MANAGEMENT

Gartner Sees Possible Job Cuts, Freezes

Gartner Inc. began its Symposium/ITxpo 2008 conference in Orlando last week with a grim parade of recommendations related to the economic downturn. How grim? No. 1 on the consulting firm's list of what IT execs should prepare for were hiring freezes – and possibly even layoffs.

"The next big thing in IT is not a technology – it is cost reduction, risk management and compliance," said Peter Sondergaard, who

■ Virtualization and cloud computing top Gartner's list of strategic technologies for next year.

heads Gartner's worldwide research operations.

Gartner, which said late last month that it didn't expect a recession in IT spending, has ratcheted down its growth forecast since then. It's now predicting overall spending growth of 3% year over year this quarter and 2.3% in 2009 – and it isn't ruling out budget cuts as deep as 20% at some companies.

"This is no downturn; this is a crisis," analyst Whit Andrews said.

– PATRICK THIBODEAU

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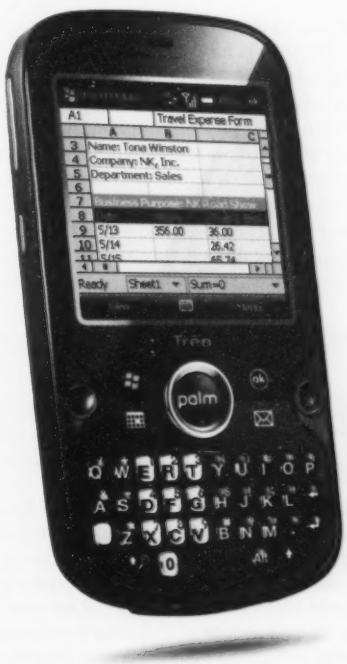

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SOFTWARE

D.C. Gives Google Apps A Spot at Desktop Table

FOR VIVEK KUNDRA, an experience on one of the most harrowing days in U.S. history turned out to be a driving force behind his decision — seven years later — to embrace Google Apps as a possible alternative to Office for municipal workers in the District of Columbia.

On Sept. 11, 2001, Kundra was interviewing for a job as IT director for the city of Arlington, Va., when news came of the terrorist attacks in New York and Washington. Kundra was hired that same day. His immediate concern about Arlington's lone data center being a potential single point of failure left a lasting impression on him, he said last week.

That, along with other factors, is prompting Kundra — who is now the District of Columbia's chief technology officer — to adopt Google's cloud computing approach for at least some applications. For example, he turned to Google Apps for an intranet that went live in February. And he is giving the district's 38,000 municipal workers the option of using the Google technology instead of Office.

» CTO Vivek Kundra is looking to cloud computing to eliminate single points of failure.

"For certain types of work, Google Apps is far superior," Kundra said. Employees are using Google's YouTube technology for training and other purposes, such as recording videos for performance reviews. Budget planning and procurement also are being done with Google's software.

In addition to seeking to move away from a centralized data center model via the cloud approach, Kundra said he wants District of Columbia employees to benefit from the consumer-focused technical advances that are taking place in the Web 2.0 world.

"It used to be that people went to work to have access to the greatest technology," he said. "Now people go home to have access to the greatest technology."

Kundra isn't turning his back on Microsoft Office. The district's municipal workers are still heavy PowerPoint users, he said. He added that giving users a choice between Google Apps and Office has created a competitive environment in which the technology "that brings about the greatest value for the user is going to attract the most users and win out."

A spokesman for Microsoft Corp. said via e-mail that the software vendor "maintains a strong relationship" with the District of Columbia. Plans are in place for Microsoft to work with "several agencies" on new projects, he added.

— *Heather Havenstein*

Short Takes

- A problem with Google Inc.'s Gmail service left some users unable to access their e-mail for about 30 hours last week. The glitch was first reported on Wednesday afternoon and wasn't fixed until late Thursday. Google said that only "a small number" of users were affected.
- Separately, some systems administrators complained in a discussion forum that their Google Apps portal pages were malfunctioning – apparently after a software update by Google. A Google worker posted a message Thursday night saying the glitch had been fixed. But users continued to add problem reports after that.
- SAP AG asked a federal judge in California to throw out some of the claims in an unfair-competition lawsuit that Oracle Corp. filed against SAP and its TomorrowNow Inc. subsidiary last year. Oracle declined to comment.
- Novell Inc. said that it plans to buy Managed Objects Inc., a developer of business service management software, for an undisclosed price.

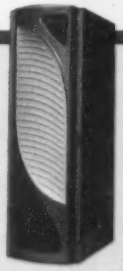
BUSINESS INTELLIGENCE

Teradata Goes to 'Extreme' Lengths on Data Analysis

AT ITS USER conference last week, Teradata Corp. announced products designed to keep it out in front in the high-end data warehousing race, including an appliance that can store up to 50 petabytes of data in massively parallel grids.

The Extreme Data Appliance 1550 starts at $16,500 per terabyte, said Scott Gnau, Teradata's chief development officer. He added that the device is designed for users seeking a relatively low-cost way to keep large volumes of historical data in a single data warehouse.

Companies with specialized analysis needs are the most likely buyers of the 1550, according to Teradata. Gnau said potential users include telecommunications carriers that want to examine huge batches of caller data records.

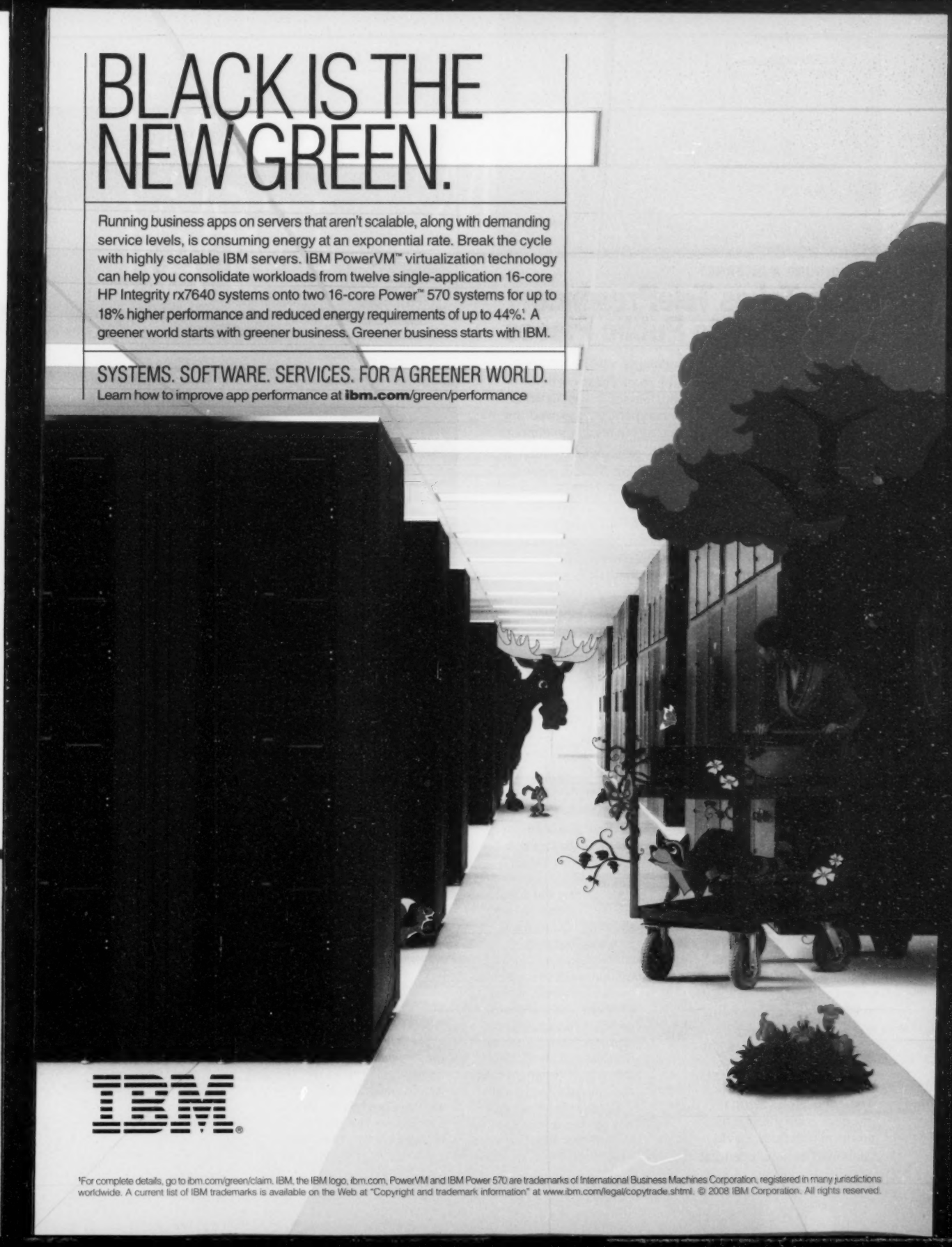


« Teradata's Extreme Data Appliance 1550

Forrester Research Inc. analyst James Kobielus said the new appliance should reinforce Teradata's hold on the extreme high end of the data warehousing market and help it compete with lower-cost offerings from rivals such as Sybase Inc. The big question, he added, is how Teradata will avoid cannibalizing sales of its pricier appliances.

At the user conference in Las Vegas, Teradata also detailed the next version of its namesake decision-support database, which will include storage virtualization capabilities and other new features. A beta release of Teradata 13.0 is due this quarter, and shipments are expected to start by mid-2009.

– ERIC LAI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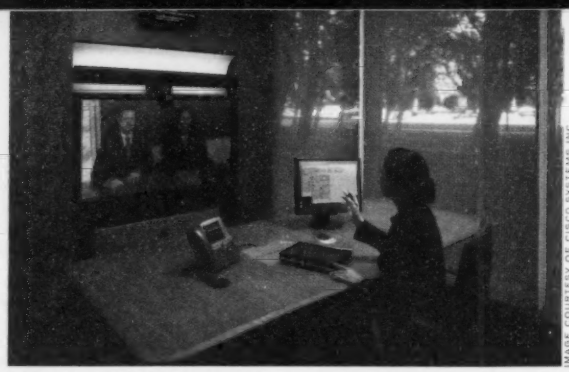


IMAGE COURTESY OF CISCO SYSTEMS INC.

NETWORKING & INTERNET

Cisco Takes TelePresence Technology to Public Places

CISCO SYSTEMS INC. last week said its TelePresence high-end videoconferencing technology is now available for use on a rental basis at a Cisco facility in California and at hotels in Boston, London and two cities in India.

Rooms equipped with TelePresence systems have also been set up for public use at four offices of the Confederation of Indian Industry, a trade group in India. Cisco worked on all of the deployments with Mumbai-based Tata Communications Ltd., which plans to open another 100 videoconferencing rooms in various locations by the end of next year.

Cisco has been selling TelePresence setups, which include high-definition monitors plus cameras and sound systems, to corporate users for the past two years.

But installations can cost $350,000 to $500,000 per room, and Cisco officials said the addition of publicly available rooms (pictured above) is aimed at expanding the market for the technology. Rental costs range from $299 to $899 per hour, depending on the size of the room.

Thus far, the hotels with TelePresence systems are all part of the Taj Hotels chain. The Taj Boston's setup is in a converted guest room on the eighth floor. David Gibbons, the hotel's general manager, said he foresees the room being used by businesses as well as other customers, such as wedding parties that want to connect with guests who couldn't attend their event in person.

In March, Hewlett-Packard Co. announced plans to equip rooms at unspecified Marriott hotels with its Halo telepresence system for rental use. But IDC analyst Nora Freedman said that no such rooms have opened yet.

— Matt Hamblen

BETWEEN THE LINES *By John Klossner*

BENCHMARKS LAST WEEK

Microsoft Corp. said it will use Windows 7, until now a code name, as the official name for its next operating system release. But the software code itself will be labeled Windows 6.1.

A 16-month-old ban on imports of new cell phones with Qualcomm chips was overturned by a federal appeals court. The ban stemmed from a patent infringement suit.

AT&T Corp. and Sun Microsystems Inc. said they were teaming up to develop a unified version of Unix – a deal that set off the "Unix wars" between rival camps of vendors.

Global Dispatches

Microsoft's FAST Accused of Fraud

OSLO – Police in Norway last week charged Microsoft Corp. subsidiary Fast Search & Transfer ASA with accounting fraud, alleging that it improperly reported revenue in 2006 and 2007 – before it was bought by Microsoft.

The police also raided the enterprise search vendor's headquarters here, seizing computers and documents, said Bard Thorsen, a Norwegian government prosecutor. He added that the Microsoft unit, which is known as FAST, could be fined if found guilty.

Norway's financial regulatory agency reported FAST to Oslo police in May. That same month, just days after being acquired by Microsoft in late April, FAST restated its results for the previous two years.

Microsoft said it is cooperating with the police and taking steps to align FAST's accounting practices with its own.

Jeremy Kirk,
IDG News Service

Cisco Speeds Up Training in India

BANGALORE, India – Cisco Systems Inc. has launched a program here to accelerate the training of workers on its networking technology, adding to similar efforts begun last year in South Africa and Jordan.

The Global Talent Acceleration Program compresses the typical training period required for a Cisco Certified Internetworking Expert certification from three or four years to as little as nine months, said GTAP Director John Livingston.

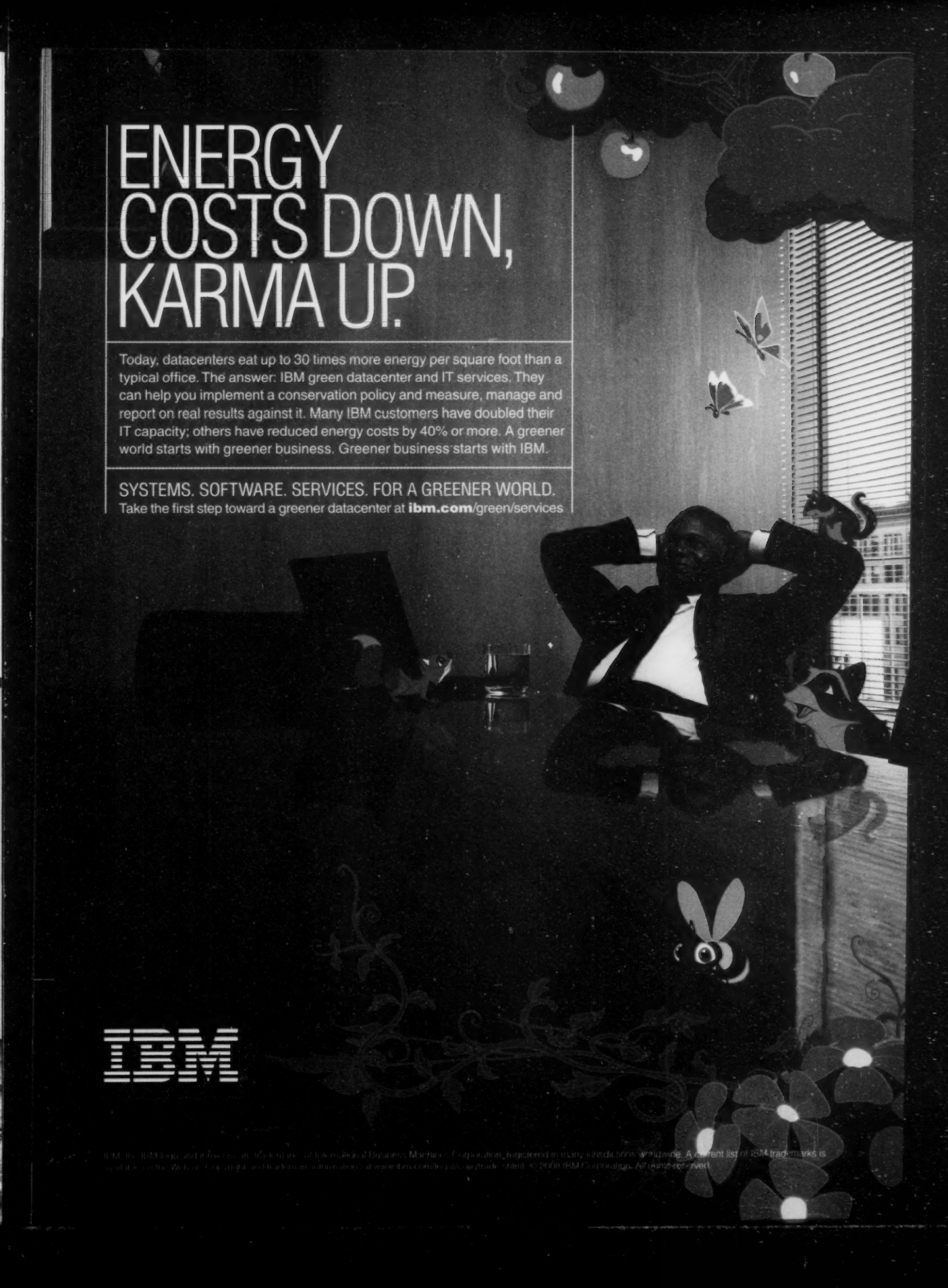
Cisco expects to train about 100 people in India during GTAP's first year there. The program also covers communication skills for interacting with customers, Cisco said.

John Ribeiro,
IDG News Service

BRIEFLY NOTED

A software programmer at outsourcing vendor Infosys Technologies Ltd. was arrested in Chennai, India, for allegedly sending threatening e-mails to Indian President Pratibha Patil. The suspect was caught after police tracked the IP address used to send the e-mails.

John Ribeiro,
IDG News Service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NEEDED: Better IT Crystal Balls On Wall Street

NEWS ANALYSIS

One likely outcome of the financial market meltdown is an effort to improve the modeling tools that are designed to help firms spot risky business — before it's too late.

By Jaikumar Vijayan

GREED and a lack of regulatory oversight are getting most of the blame for the ongoing financial chaos on Wall Street. But there was also an IT component to the meltdown — namely, a reliance on risk modeling and management tools that weren't up to the task of predicting just how risky some of the new forms of financial investments could be.

As a result, financial services firms are now expected to take an increased interest in developing or buying more effective risk management technologies — partly for competitive reasons, and partly to help them comply with the new regulations that many people in the industry think are inevitable.

Financial risk models often have thousands of variables and require enormous amounts of computing power. As evidence of that need, market research firm IDC says that annual spending by financial firms on high-performance systems grew from $169 million in 2003 to $305 million last year.

As the complexity of the models increased, so did the confidence that federal regulators placed in them. For instance, *The New York Times* reported this month that at a little-noticed meeting in April 2004, the U.S. Securities and Exchange Commission — acting at the behest of large investment banks — voted to loosen its debt-limit rules and rely on the firms' computer models for assessing investment risks.

But as recent events have made

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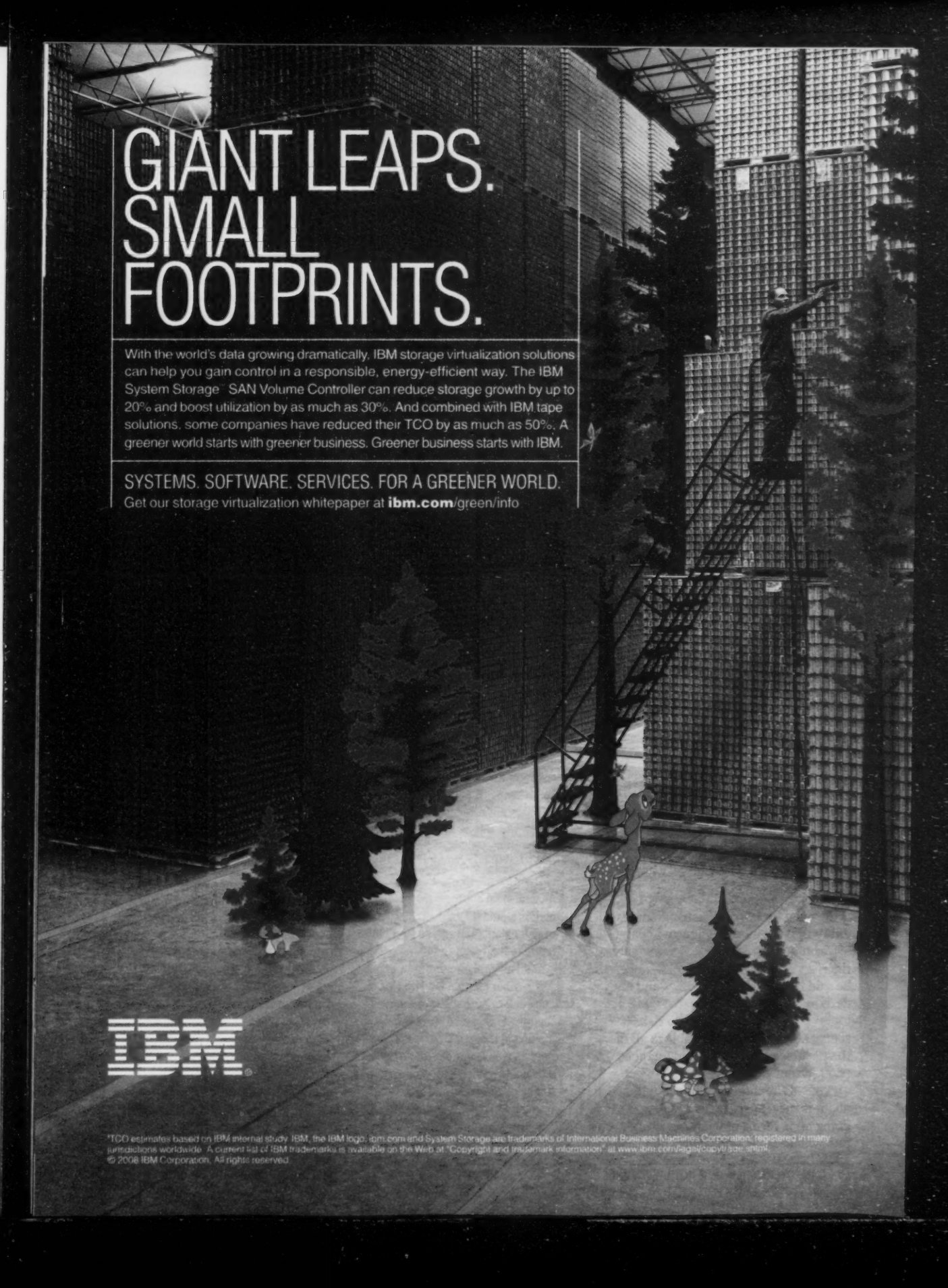
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Continued from page 8
clear, such confidence in the technology appears to have been misplaced.

Dennis Santiago, CEO and managing director of Institutional Risk Analytics, a consulting firm and software developer in Torrance, Calif., said the Wall Street crisis has exposed some fundamental shortcomings in current risk-modeling tools and data analysis techniques. "We have been pretty much using the same .ools for a decade now," he said. "One of the things that is clearly beginning to show itself is that the techniques that worked in the last business cycle for managing risk don't work as well anymore."

For example, Santiago cited the way that companies model the risks associated with so-called structured finance transactions, such as loans made to a business based on its cash-flow history. Much of the statistical averaging applied in the risk models is done in "an almost blind fashion, on the assumption that it has worked all this time," he said. But, he added, that has become a faulty assumption, causing many institutions to lose confidence in such transactions.

What's needed now, according to Santiago, are increased investments in systems and analytical approaches that come closer to modeling the actual risks faced by financial services firms.

RISK MANAGEMENT TENETS

The current financial crisis highlights some "core tenets" for effective risk management, said Dave Hoag, director of clearing technology at CME Group Inc., which operates the Chicago Mercantile Exchange, the Chicago Board of Trade and the New York Mercantile Exchange.

The most important one, Hoag said, is the need for fair and transparent visibility into the models, data and analytic techniques that are used to calculate the risks of transactions. For instance, he said that the methodologies and underlying numerical values that CME's tools use to generate portfolio risk scenarios are openly available to all of the participants in a planned financial transaction.

"One of the things we like to talk about is the transparency of what is going on in terms of who trades what and when," Hoag said. "Everybody understands what goes into the risk analysis." He added that he expects to see a heightened focus on making risk calculation processes more transparent — as companies either elect or are driven to do so by new regulations.

Not everyone is convinced that big changes are needed in risk management systems and procedures. Glyn Holton, an independent financial risk management consultant based in Boston, acknowledged that there will likely be a greater emphasis on risk modeling, at least for a while. "There will be some more focus on strengthening risk management, some technology will be purchased, and probably monitoring will be increased," he said.

But Holton thinks the problems on Wall Street have far more to do with an absence of regulatory oversight. "Financial risk management makes a wonderful scapegoat," he said. "This is a cycle we go through whenever we have losses. We trot out the back-office risk management guys."

On the other hand, Suzanne Duncan, financial markets industry leader at the IBM Institute for Business Value, said there is broad recognition that new investments in risk modeling are needed.

In June, the IBM think tank and research operation and the Securities Industry and Financial Markets Association jointly surveyed about 500 IT professionals in the financial industry about their technology spending priorities. According to IBM, 67% of the respondents cited increased risk-transparency rules as the primary regulatory action that would affect IT. And a majority said that the crisis was a catalyst for increasing the amount of money their companies were investing in risk management projects.

Duncan said that could eventually drive even more demand for high-performance computers capable of crunching risk models. ■

Patrick Thibodeau *contributed to this story.*

Is Open Source the Answer for Risk Models?

BY AGREEING to rely on Wall Street's computer models to gauge investment risks, the SEC essentially outsourced that part of its regulatory duties to the systems of financial services firms, says Erik Gerding, an assistant professor of law at the University of New Mexico who does research on securities law.

Gerding's proposed fix: Make the software code that underlies the risk models open source – a step that he claims would boost the transparency of risk calculations and potentially improve their accuracy.

"Just as with open-source software, other users would be able to copy and modify these models for their own use," Gerding said. And by looking at the code, business partners as well as credit-rating agencies could get a better picture of how financial services firms assess the transaction risks, he said.

Many Wall Street firms are already major users of open-source software. But Lisa Cash, executive vice president of sales and marketing at DFA Capital Management Inc., a vendor of risk management tools, said she thinks it would be difficult to get high-quality risk models into the market on an open-source basis.

Cash said that a better option for increasing transparency as well as confidence in risk models would be for U.S. regulators to emulate their counterparts in Europe, where watchdog agencies audit financial firms' risk models.

Peter Teuten, president of Keane Business Risk Management Solutions LLC, also questioned the wisdom of using open-source approaches in risk modeling. But he said that he does expect some modeling standards to emerge from the crisis.

– PATRICK THIBODEAU

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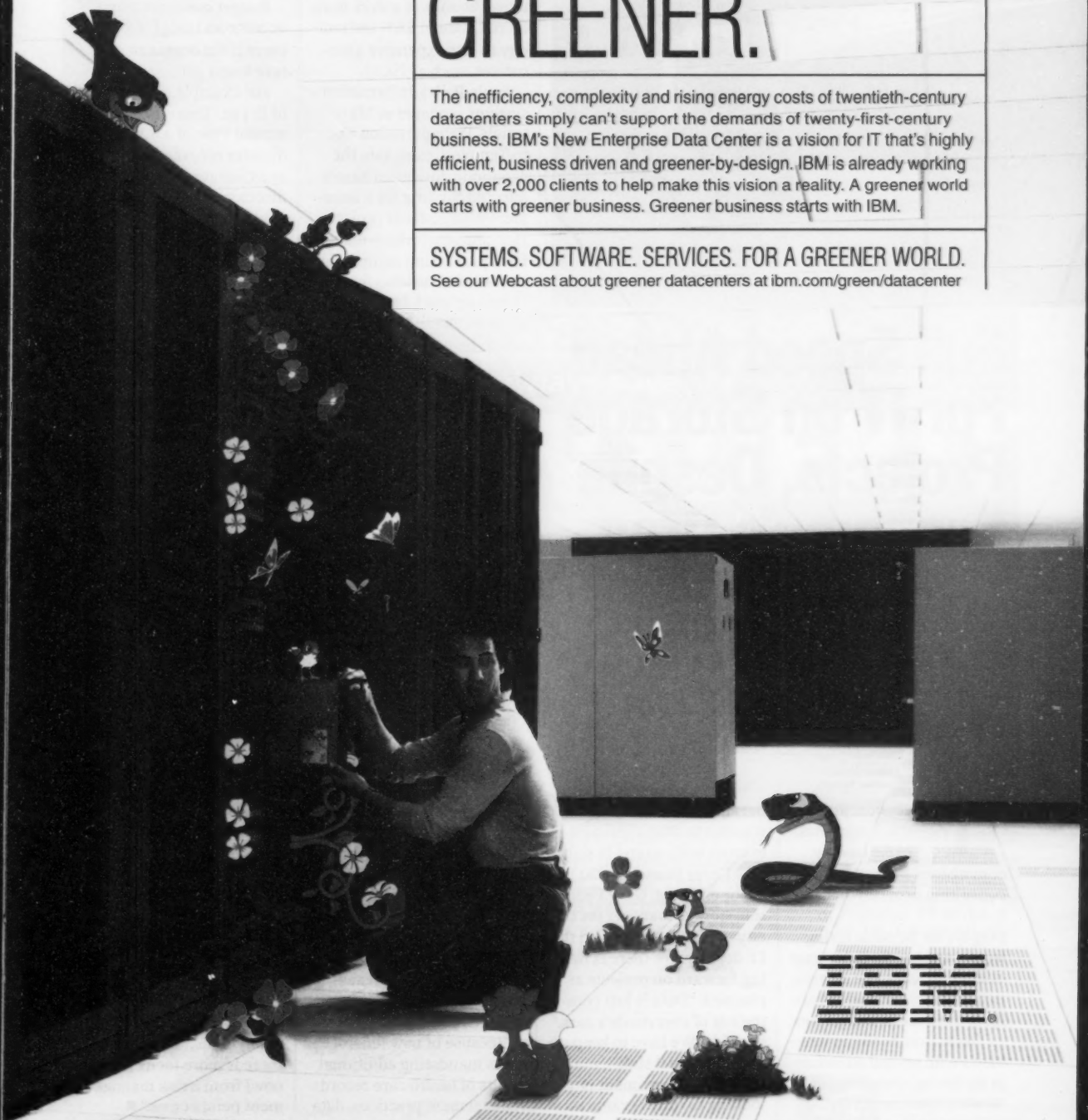

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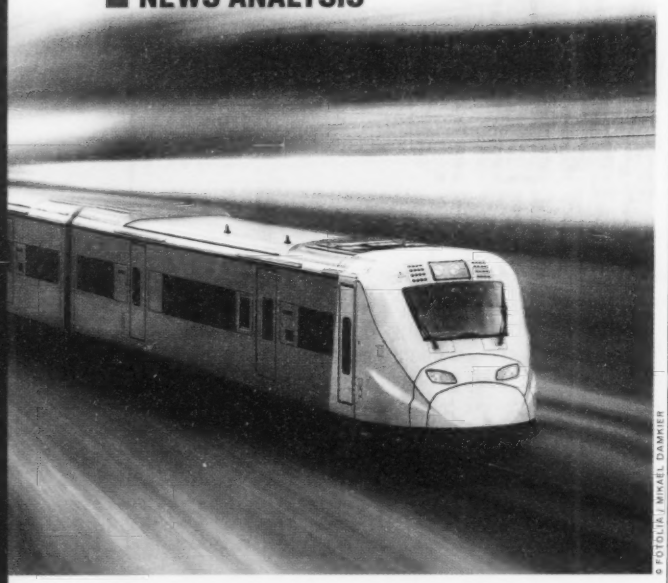

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Full Speed Ahead For IT on Storage Projects, Despite Economy's Drag

The economic downturn may affect IT budgets. But data storage is expected to be largely recession-proof.

By Todd R. Weiss

THE ECONOMY may be in a recession, and the stock market is experiencing convulsions — prompting consulting firm Gartner Inc. to advise IT managers to prepare for possible hiring freezes and layoffs. But storage doesn't appear to be an area that many organizations are likely to target for budget cuts.

The reason, based on interviews with several attendees at the Storage Networking World conference in Dallas last week, is simple: Even with the economy struggling, the amount of data that users need to store continues to grow, with no end in sight. (See Cover Story, page 20.)

For example, Gary Pedersen, storage manager for the city of Plano, Texas, said the IT department there is moving forward on projects as planned. "Data is just coming out of everybody's ears," he said. "We have to keep up with it or we'll sink."

Plano's government is looking to fully revamp its storage infrastructure with new hardware and storage-area networks (SAN). "We're beyond adding on," Pedersen said. Cost is also a consideration, though. One possible move, he said, is a shift from Fibre Channel SAN technology to less expensive alternatives, such as iSCSI.

Paula Pollei, information systems manager at Materials Transportation Co. in Temple, Texas, said the economic downturn hasn't affected funding for a document management project. Her company, which makes food-processing equipment and robotic systems for changing truck batteries, plans to install the technology to help organize a vast collection of engineering plans and other documents.

"Everything's customized, so we have unique diagrams from every piece of equipment [we've sold]," Pollei said. When customers call for help or replacement parts, workers need easy access to documents — so her company wants to automate that process.

But doing so will require a new storage system that will go well beyond the small, basic SAN that the company uses now, Pollei said. Her mission at Storage Networking World — which was run jointly by *Computerworld* and the Storage Networking Industry Association — was to find product information and possible vendors for the storage piece of the project.

The economy also isn't affecting plans at Leprechaun LLC, said Ann Jones, a network storage engineer at the Fort Worth, Texas-based data management services provider.

Because of new federal rules mandating additional audits of health care records-management practices, data is "coming online faster than we can keep up with it," Jones said. As a result, the company is gearing up to buy new storage and data backup technology.

Budget concerns could become an issue for some users if the economic picture keeps getting worse.

For example, the city of Bryan, Texas, is in the second year of a three-year disaster recovery project, and Gustavo Roman, its IT director, expects the work to continue as budgeted. "You don't want to have a knee-jerk reaction," Roman said. But he added that funding issues might arise in the future if the crisis continues.

James McCartney, a systems programmer at the University of Arkansas in Fayetteville, said the school's IT budget has yet to feel any pinches. But even before the economic and financial problems began ratcheting up last month, McCartney and other IT staffers were looking for ways to save money on storage — albeit through the addition of new technologies.

Storage virtualization may be one option. The IT department is also exploring the idea of setting up multiple storage tiers so it can move lower-priority data to less-expensive hardware, McCartney said.

For other users, it's full speed ahead. A senior vice president of IT at a large bank on the East Coast said the organization's technology road map isn't being redrawn. "This is not something that you can just change course on at the flip of the switch," said the executive, who asked to remain anonymous. "If anything, there is more focus [on IT now] from a risk management perspective." ■

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Dossier

Name: W. Hord Tipton

Title: Executive director

Organization: (ISC)²

Location: Palm Harbor, Fla.

Favorite place in the U.S.: "Alaska. It's wild, it's very thinly populated, and it has great fishing and great hunting and all the outdoor things I like to do. I've been all the way from Juno to the Arctic Circle."

Best workday ever: "When I was [CIO in the U.S. Department of the Interior] and the White House determined that our IT architecture was the best in government and a best practice. That was in 2005. It was so significant to me because when I went into the job, it was the lowest-ranked in government."

Favorite technology: "It has to be computers. I've built 19 of them and a couple of servers; that's my hobby."

When he retires: "I retired [from the Interior Department in 2007]. I fished, I golfed, I hunted, I worked 20 hours a week consulting. I liked that. I'll probably do it again – unless another exciting job like this pops up."

Favorite nonwork pastime: "That's easy: playing with my granddaughter. She's 7."

■ THE GRILL

W. Hord Tipton

The (ISC)² executive director talks about designing **security software, compensating** for human error and pulling together to **beat the bad guys.**

The International Information Systems Security Certification Consortium Inc., or (ISC)², is a nonprofit organization that educates and certifies information security professionals. W. Hord Tipton has been promoting (ISC)²'s new certification, the Certified Secure Software Lifecycle Professional, or CSSLP.

What's your primary mission as the new executive director of (ISC)²? I want to bring together the [various technology security organizations], so when we're delivering a message in this complex world, we're speaking as more of a single voice. Too often, the organizations think we're competitors, when in 80% to 90% of what we do, we're not competitors at all. We have a lot

Continued on page 16

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"Encryption codes that now would take 100 years to break can be broken in a few minutes if you have . . . quantum computing.

Continued from page 14

of similarities, even with the different credentials and acronyms. Microsoft has their gold standard. HP, Cisco — all have their [certifications]. SANS has theirs. And I've been talking with the directors of these to come up with some better ways to work together so we're all on the same side to promote IT security.

Given all the information about computer security, we still see some pretty significant breaches. Why aren't we further ahead? It's all about software. Why has it taken so long to recognize that something different has to be done to eliminate what in many cases are easy paths into these [systems]? My theory is if we move a little faster, obtain some synergy working together, then maybe we can have time to think ahead and put prevention methods in place. We have tools to do this, but we either don't think ahead or people can't afford them or they haven't been deployed; they just get overlooked.

That's our thinking with the new credential we're launching. Everyone at this point recognizes that much of the issue is around human errors — lost passwords, phishing. These are just the result of people not being aware, properly trained or educated in things to look out for. So we need to adjust the balance between software that maintains functionality but at the same time is more ingrained with security protection.

Are you saying that security in software needs to protect against human error and carelessness? I am saying a balance is needed between user-friendliness, functionality, controls and edit checks built into the software. Software can do much more to help avoid human error and improper-access violations. These mistakes never show up in a security vulnerability scan.

Who are the leading threats to enterprise security, and what exactly are they after? At this point, it's more than just bragging to your buddies about messing up someone's Web site. It's a complete criminal enterprise. They have resources and can hire very sharp people to do their evil work. It's hard to keep up with them. That's why a lot of the shift is to protect the financial interests. That's where it seems the threats and the attacks have shifted to.

How are they getting into computer systems? Fifty percent of the attacks are Web-based at this point. And PDAs and mobile computing devices are real targets too. Those are about 13%.

How do the threats to enterprise security differ from those posed to the individual computer user? They're actually connected. They go after individual computers. You're familiar with the botnet piece of it, where individual computers become a network of a 100,000 or so where you have massive computing power. The botnets are used primarily for mass distribution of spam and malware, and sometimes DDOS [distributed denial-of-service] attacks. A credit card number could be picked up along the way, since the computer is captured and many of us have financial programs on our PCs. But most of the credit card and Social Security numbers come from large breaches from institutional sources. That is when bundling of card packages occurs and profiting begins. These are generally the work of organized professionals.

The concern has been that security is an afterthought. How do you get IT leaders to stop tacking on security at the end of the software development life cycle and instead consider it from the start? We need to talk to developers at the very beginning of the conception stage. Right now, you have modules of security that are in a library. So if you can reuse those objects in your application, you save a lot of time. And in many cases, they're very thoroughly vetted models, but they may not be the solution to all issues. So you need someone at the front end to remind developers what you're trying to protect and to ask intelligent questions as the software evolves. Once the software gets turned over to the programmers, they're operating on different incentives and motivations. They have locked-down budgets, the rush to market begins, and if someone comes in and asks, "Have you designed in there the need for input validation?" for example, it's too late. It will cost extra money and will slow things down.

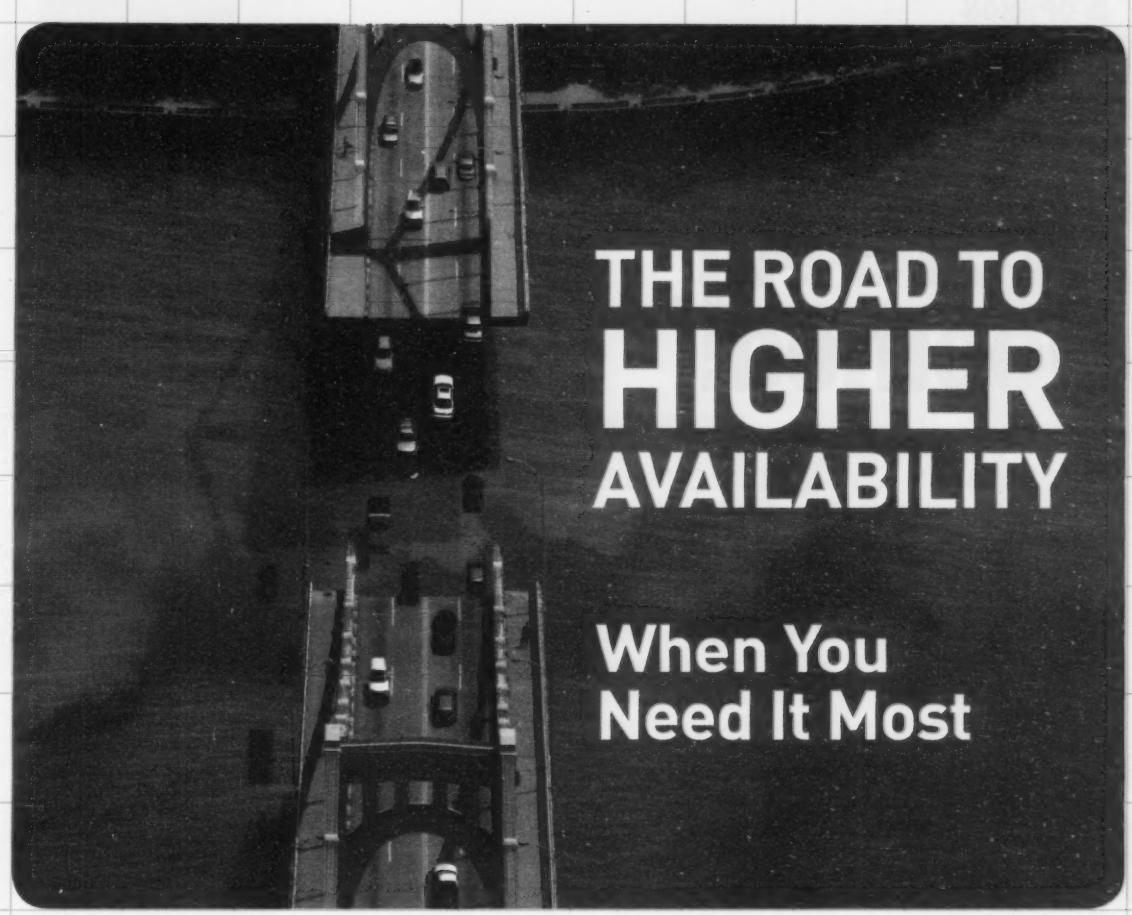
And [the software] has to be deployed correctly. There needs to be a change configuration management process in place that at least has someone aware of how the software evolved and [that] if you change something in one place in the application, that might introduce a vulnerability in another place.

This is what we need to make sure the CIOs [and] the CFOs understand. Once it's made clear to them what risk they entertain by doing certain shortcuts, it makes it easier for them to understand why they need to spend the extra time and resources to produce a quality, secure product.

How do you think the enterprise security landscape will look in five years? We should be thinking about what's going to be happening in encrypting. We'll probably have quantum computing in not too many years, and encryption codes that now would take 100 years to break can be broken in a few minutes if you have the capability of quantum computing. So there has to be some thinking on how we deal with things in light of new computing.

So in five years, security will still be a big issue in IT? Absolutely. That's why I think there's such a growing need for security professionals. It's what I see as the No. 1 recruitable position.

— *Interview by* **Mary K. Pratt**



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■ OPINION

Bruce A. Stewart

'We're All Doomed!'

IT'S BEEN A TUMULTUOUS YEAR, and IT professionals have not been excluded from the heart-stopping excitement. What has surprised me immensely in the past month, however, is a sudden shift to pessimism. People's concerns about the companies they work for are melding with worries about 401(k) performance and mortgages, all amplified by the sense that the world is falling apart. "We're all freaking doomed!" has become the cry of the day.

How much of this worry is justified?

First things first. A lot of companies are in trouble. They've been having funding difficulties, and a second wave of budget cuts is starting to build. More major names than you might suspect have been on the brink of not making payroll as commercial credit has dried up. Contractors are being laid off as projects are shelved, and permanent staffers are worried that they'll be next. For some, that's true — and finding a new job won't be as easy as it might have been a year ago.

But a fair number of companies aren't in trouble. That old saying about a rising tide lifting all boats seems to have an asymmetrical corollary: An ebbing tide drops each boat individually. If you work for a company whose markets and operating cash requirements are sound, your job is probably safe. One less worry.

Second, if you're an IT manager, pay attention to what's happening with your employees. They're probably stressed out about the same things you are: credit card balances, investment performance, mortgage payments and real estate values.

One way to handle stress is to begin sorting out your work ahead of cutbacks. Pull back from the 20 or more projects that your area has been working on and focus on just a few, the ones that will result in cost savings or potential revenue. That's a good way to hold onto funding.

■ Is it a high-stress time? Absolutely. But you can reduce the stress for all around you.

And when you take ideas to senior management, present multiple approaches for getting them done. That will give them choices — and make it more likely that one of those ideas will be funded.

Turbulent times are ideal for cleanup activity. With pressure to cut costs, you can justify scaling back services to levels that are sustainable but less expensive. Remember, projecting the consequences of various courses of action is key to attracting money and work.

Third, it's a good time to think about the value that your suppliers bring to the table. Vendors are going to be hungry for new business, so you can expect to see one deal of the century after another as they get more desperate. Just make sure that anything you buy will deliver results for the company. Don't buy anything just because of a price reduction.

It's important to show discipline right now about what can be deferred vs. what must be undertaken. Take a stand against Microsoft forcing a companywide upgrade to Vista. Be tough with any outsourcers that want price adjustments. Say no to a vendor with prices that sound too good to be true. Demonstrating an ability to do these things will help you when you have to make your case for the things you do need for the business.

Is it a high-stress time? Absolutely. But you can reduce the stress for all around you, including your corporate leaders, if you can show that you get their world. And you may just get what you need in the process. ■

Bruce A. Stewart *is CEO of Vancouver, British Columbia-based Accendor Research Inc., an advisory services firm focused on management issues in the technology-enabled enterprise. He can be reached at bruce.stewart@accendor.com.*

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TIME TO SHRED

PURGING DATA SAVES MONEY AND CUTS LEGAL RISK, SO WHY DO SO FEW COMPANIES DO IT? BY MARY BRANDEL

A FUNNY THING happened on East Carolina University's journey to creating a data-retention strategy: It developed a data-disposal policy.

As part of a compliance project launched about a year and a half ago, Brent Zimmer, systems specialist at the university, was working with attorneys and archivists to determine which data was most important to keep and for how long.

But it soon became clear that it was just as vital to identify which data should be thrown away.

Zimmer was aware of the importance of being able to quickly produce required information during litigation, "but the thing we never thought about was keeping data too long," he says.

The risk is that by keeping data you wouldn't normally be required to produce in a lawsuit, you could open the door for it to ultimately be used as evidence against you.

The university had its share of data that was overdue for purging. "We never made anyone throw away anything unless they ran out of space," Zimmer says. The result: Some users had e-mail dating back to 1996.

East Carolina University is not unusual; many organizations hang on to more data than they need for much longer than they should, according to John Merryman, services director at GlassHouse Technologies Inc., a storage services provider in Framingham, Mass.

One reason is fear. "Companies are really sensitive because there's a perceived underhandedness to purging data," he says. "People might wonder, 'Why aren't you keeping all your records?' "

Another is the low cost of storage. Organizations have historically preferred to simply buy more disks rather than spend time and resources sorting through what they do and

ILLUSTRATION BY STEPHEN WEBSTER

don't need. "Many people would prefer to throw technology at the problem [rather] than address it at a business level by making changes in policies and processes," says Kevin Beaver, founder of Principle Logic LLC, an information security services firm in Acworth, Ga.

But thanks to the e-discovery risk and burgeoning data volumes — a 20% to 50% compound annual growth rate for some companies — the tide is starting to turn, Merryman says.

Good thing. The average cost companies incur for electronic data discovery ranges from $1 million to $3 million per terabyte of data, according to GlassHouse. And although you need to pay attention to retaining data, "all indications are that you need to be keeping less," says Merryman.

A recent report from Gartner Inc. concurs. It states that the current explosion of data is outpacing the decline in storage prices, even before the resource costs for maintaining data are taken into account.

Estimating that the average employee generates 10GB of data per year, at a cost of $5 per gigabyte to back it up, Gartner says a 5,000-worker company would face annual costs of $1.25 million for five years of storage.

And considering that many companies maintain multiple copies of data (such as test data, operational data and disaster recovery copies, not to mention backups), "there's an explosion of data in most companies," Merryman says.

Aside from the costs, all those records, if kept indefinitely, can become a gold mine for attorneys looking for evidence, he adds.

POLICY POINTS

One way to address this problem is to set retention policies that reduce exposure to legal problems.

But don't try to boil the ocean, Merryman advises. Rather than looking across the whole data landscape, create policies about what to save and how long to save it, from the application or business level down. Also, create black-and-white rules that are easy to understand and follow.

For instance, roll all data types — such as e-mail, application and file data — into 10 to 30 categories of big-picture policies rather than hundreds of granular ones. "You need broader rules, like 'Accounting data needs to be retained six years,' not 'This annual report needs to be retained five years,' " Merryman says.

> **"THE THING WE NEVER THOUGHT ABOUT WAS KEEPING DATA TOO LONG."**
>
> **BRENT ZIMMER,** SYSTEMS SPECIALIST, EAST CAROLINA UNIVERSITY

And how long to save is another consideration. According to research from Enterprise Strategy Group Inc. in Milford, Mass., the average required retention period for files, e-mails and databases is on the rise. Most companies retain such data for four to 10 years, says Brian Babineau, an analyst at ESG.

East Carolina University started with the low-hanging fruit, setting retention and purging policies for e-mail, medical records and security video footage. It archived that data on a new system that uses Symantec Corp.'s Enterprise Vault storage management software and EMC Corp.'s Centera content-addressed storage array. E-mails from the chancellor and the dean are saved for seven years, Zimmer says; faculty and staff e-mail is purged after three years.

Moving data to the Centera devices has reduced primary storage costs by 40% to 50%, Zimmer says.

He adds that before East Carolina University used a Centera disk array, it relied on tape backups for data retention. But since backups collect data in daily snapshots, there was always the potential for data to be missing if it got to the server after the snapshot was taken. And even if the data could be found on tape, Zimmer says, the cost of restoring it would be extremely high, especially if the information that was needed was a year or more old.

"You could potentially be working on gathering that information for a week or two, just to get to a certain piece of e-mail to restore to tape for the test lab to extract," he says.

In fact, while researching the return on investment of Enterprise Vault, Zimmer estimated that it would take 80 staff-hours to recover all the e-mail generated by one employee for one year if it had to be restored from every monthly backup tape. With the archive system, it would take just 15 to 20 minutes, and the company is guaranteed to get every piece of e-mail, he says.

The university's security video is archived for only 30 days — a good thing, since university police collect a terabyte per day. Patient records from the medical school need to be kept for

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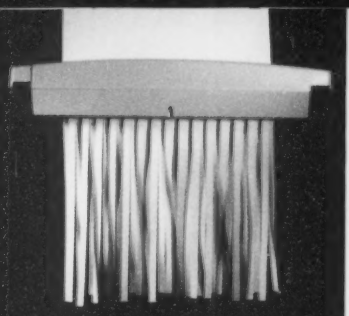


LITIGATION RISKS & COSTS

Fulbright & Jaworski LLP surveyed 253 U.S. and 50 U.K. corporate counsels for its "2007 Litigation Trends Survey Findings" report and found the following:

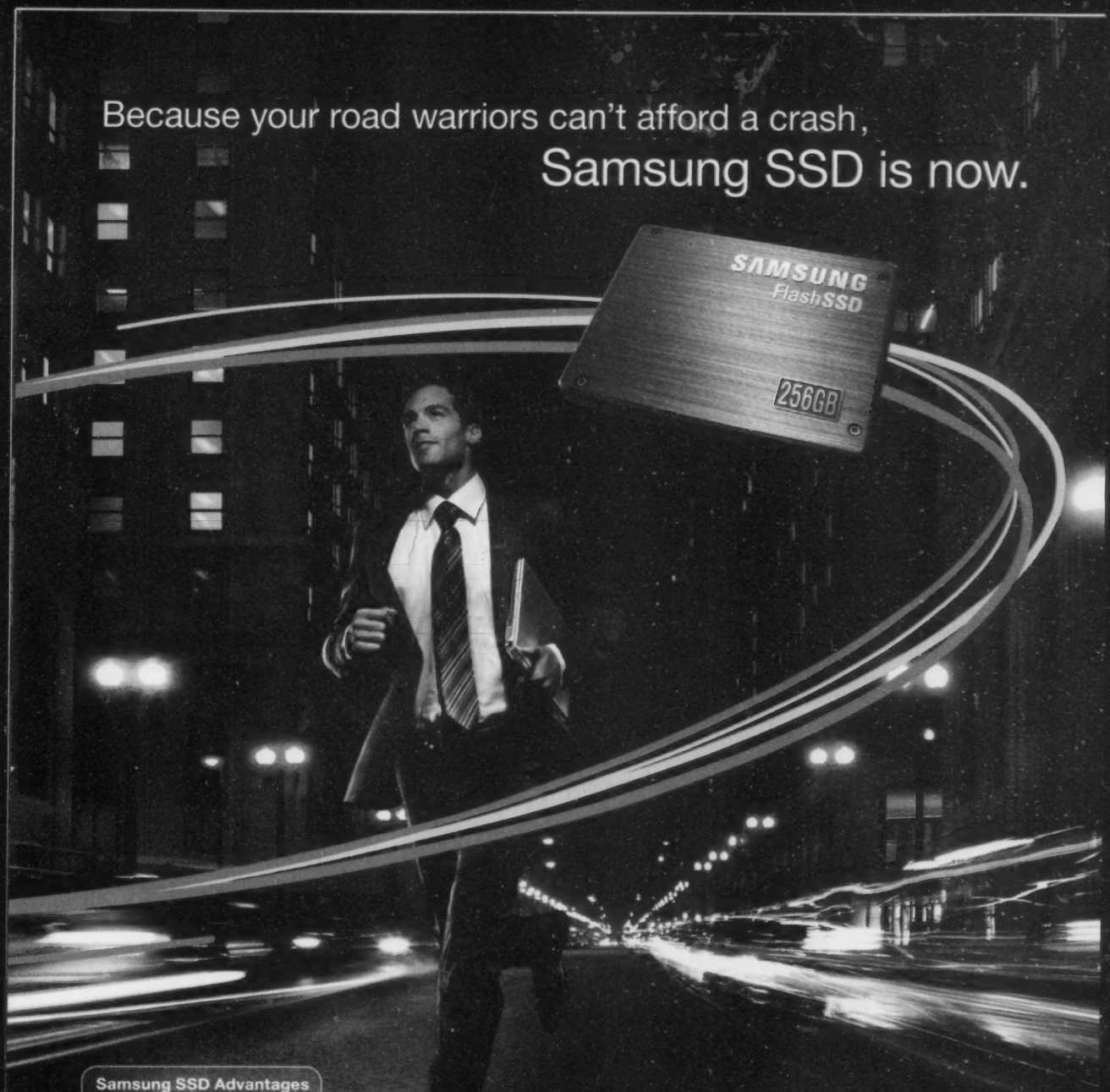
ALL of the respondents from small and midsize companies reported at least one lawsuit with $20 million or more at stake in the past year.

20% of the largest companies surveyed had 21 to 50 lawsuits with $20 million or more at stake.

ALMOST 40% of the largest companies spent $5 million or more annually on litigation, excluding settlements and awards.

31% of all respondents log or retain instant messages.

40% retain voice mail.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Continued from page 22

20 years after the patient is deceased, but East Carolina University now uses EMC's Rainfinity to take that data off primary storage and archive it to the Centera device so it's out of the backup environment.

Beyond those policies, the job of determining rules is getting more difficult, Zimmer acknowledges. "There's a lot of other stuff that we don't know the retention [requirements] for, so that will be more tricky," he says.

Gartner offers a hint. It says the key to reducing data volumes is a process called "content valuation," which examines factors such as usage patterns, nature of content and business purpose.

The simplest way to reduce data volumes is to delete the data you don't need. But that is much more easily said than done. In fact, outside of e-mail, most data is never dumped, Merryman says. "Most legacy applications have never purged data, and new applications are rarely designed to accommodate purging," he says. Moreover, he adds, deleting production data is complicated.

Also, the issues associated with legal, compliance and operational risks are often ambiguous, and few organizations have a process to accommodate a web of requirements for data retention.

"If you look at legacy data outside the application world, a lot of people have no idea what it is, but they're scared of getting rid of it," Merryman says.

At one large bank in New York, he ran across hundreds of file extensions that no one knew about, as well as data that had been kept even though it was inaccessible by currently maintained applications or interfaces.

Another difficulty with purging is the lack of a guarantee that you've deleted all instances of a data set. You might think you deleted all your old e-mail, but it may be stored on tape from two years ago, so it still exists. "Some companies figure if you can't delete it consistently, don't delete it at all because it's probably somewhere that no one knows about," says ESG's Babineau.

Given the current state of data retention in many companies, the task of purging old data could seem too daunting to even begin. But don't let that stop you, Merryman says. Start setting purging policies now rather than trying to apply them to old data. "If you address high-risk, high-volume applications and databases, you'll address 90% of the risk," he says. "If you target all 700 applications in your environment, you'll never get it done."

And remember that business logic is with you. In a tiered storage environment, Merryman says, the business case is much stronger when you purge data rather than simply archive it on lower-cost disk. "The cost of perpetually managing and refreshing huge amounts of data that's never been culled or purged is extremely high," he says.

Unfortunately, he adds, most companies that develop tiering strategies figure they'll purge sometime in the future. "But that's the problem with purge," he says. "It's always 'later,' like cleaning out the basement."

Still, he says, "if you invest in technology that helps you retain data, why not invest in technology that helps expire data when you don't need it anymore?" ■

Brandel *is a* Computerworld *contributing writer in Newton, Mass. Contact her at marybrandel@verizon.net.*

ARCHIVING IS ON THE RISE

FOR THOSE RECORDS that do need to be kept long term, many companies are implementing disk-based archiving tiers in their storage architectures. This is a better method of retaining data than tape backup systems, says Brian Babineau, an analyst at Enterprise Strategy Group. That's because the data is indexed, searchable and stored in single-instance format, making it easier to find what's needed during e-discovery.

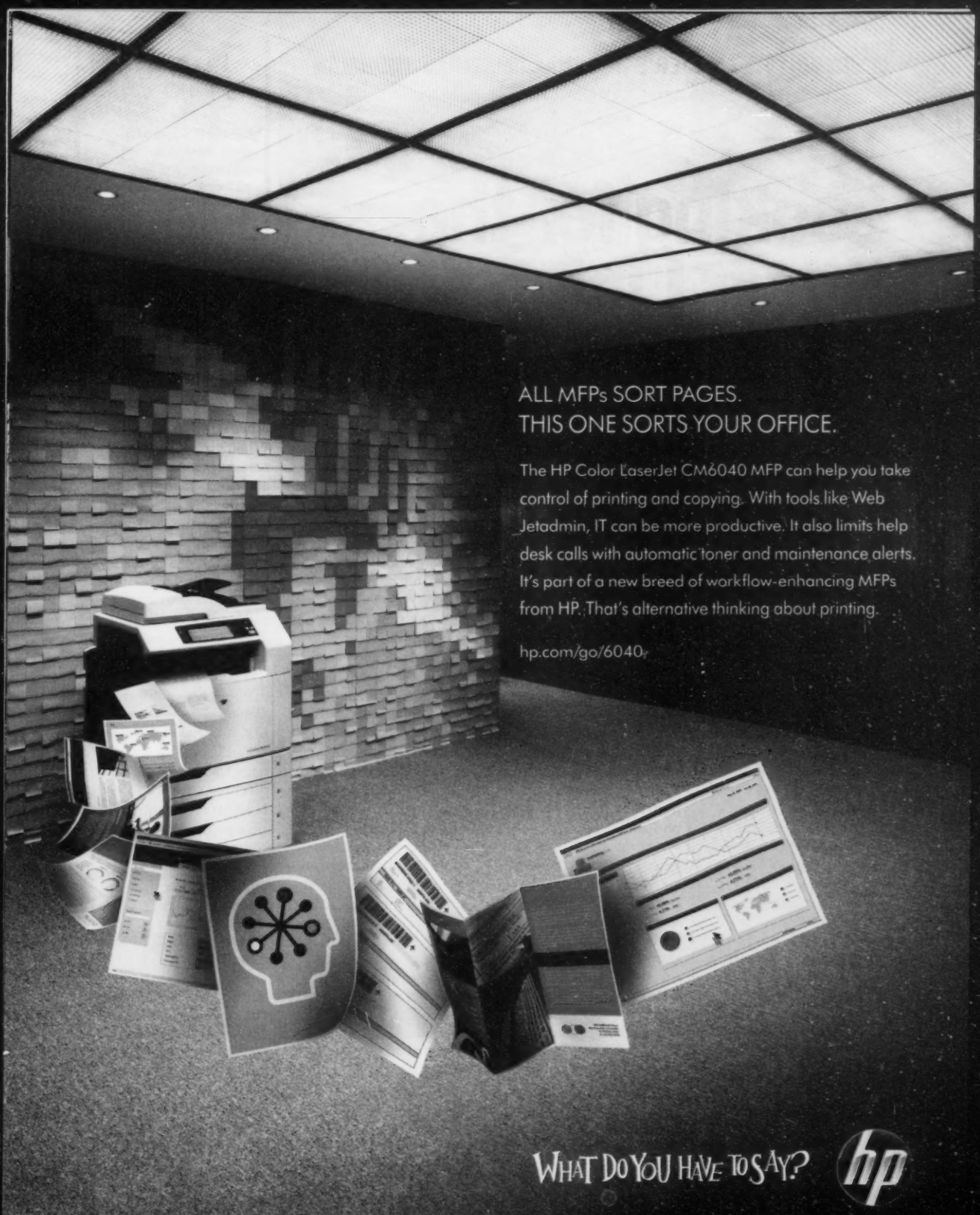
According to Robert Stevenson, managing director of storage research at TheInfoPro Inc. in New York, a study of 152 organizations found that archiving tiers had a 54% annual growth rate, compared with a 20% growth rate for Tier 1 monolithic storage and 40% for Tier 2 modular storage. Tier 1 tends to include high-performance storage platforms, with integrated capabilities for replication, disaster recovery and minimum downtime, he says. Tier 2 includes modular systems with lower cache and disk capabilities, a lower cost per terabyte and an emphasis on ease of use.

E-mail archiving is also on the upswing, according to the survey. Forty-eight percent of 148 respondents said they use it today, up from 39% two and a half years ago. And 36% use database archiving, up from 21% two and a half years ago.

One reason for archiving's growth is that companies are relying less on backup tapes for retention and more on disk-based storage.

"Discovery is a difficult task, and if you have multiple copies in the backup environment, it's extremely expensive to retrieve, index, search and take it through the preproduction process of culling and narrowing down results," says John Merryman, services director at GlassHouse Technologies. "It can turn discovery into a multimillion-dollar project."

– MARY BRANDEL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Looking for the Silver Lining

The business is looking at **cloud computing.** But our manager finds some **glaringly obvious problems.**

I'VE HAD my head in the clouds ever since I attended a meeting last week. The IT department is interested in exploring cloud computing, so I've been busy trying to identify any security risks inherent in this emerging technology.

I've done some basic reading on cloud computing, and to be honest, I've had a hard time understanding exactly what vendors are selling. Before I delved deeper, it was hard to tell the difference between cloud computing and earlier business models, some of which I have personal experience with.

Back in 2000, I worked for a start-up that hosted other companies' servers. This was a managed service provider. After it was acquired, I worked for a company that hosted a time card application. It called itself an application service provider. So, peering into this nebulous entity called cloud computing, I saw some obvious similarities with the MSP and ASP models. A closer look brought out the differences — some of them obvious security concerns.

The major differentiators are the location of data and the technology used. In the MSP/ASP models, we always knew where a customer's data resided: in one of a handful of data centers. We even let customers choose which regional data center their data would be served from.

In the MSP model, individual servers were provisioned in a data center, with minimal interaction from the vendor. We simply hosted the physical server infrastructure, providing power, networking and rack space. With cloud computing, vendors have several data centers and use virtualization to provision servers.

STORMS BREWING

There are more security concerns with this model than I can cover in this space. You'll have to conduct your own research to come up with a comprehensive list. But here are my main concerns.

■ To be honest, I've had a hard time understanding what cloud vendors are selling.

First, my company has to comply with a lot of regulations. By hosting our applications ourselves, we can clearly define our control objectives and maintain the integrity of our financial data as required by law. If we were to put our financial applications into the cloud, we would certainly have to re-evaluate our control objectives to ensure that compliance wouldn't be compromised.

The second concern is the commingling of data. Cloud vendors typically store data from multiple customers on the same hardware. We need our data to be properly segmented from that of our competitors. And when the vendors back up data, do they commingle data on shared media? If we terminated our contract, would they pull only our data from the tapes? Might some of our data end up in the hands of a competitor that way?

The third concern is virtualization. For example, VMware offers a feature called the Distributed Resource Scheduler that continuously monitors utilization across the guest operating systems living on a virtual machine and intelligently allocates available resources among other virtual machines. When virtual-machine resources are constrained, additional capacity is made available by migrating live virtual machines to a different physical server. Sounds cool, right? Well, it is. But what if the server that your source code repository lives on is dynamically moved to a server in, say, Russia or China? Can you vouch for the integrity of infrastructure that physically resides in a risky location?

I will continue to explore these and other potential security risks so I can provide the best possible guidance should the company decide to pursue cloud computing. Through my research, I hope to scope out vendors and craft a contract that will truly protect our interests and those of our customers. ■

This week's journal is written by a real security manager, **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussions in our security blogs:* computerworld.com/blogs/security.

Trouble Ticket

ISSUE: IT wants to explore cloud computing.

ACTION PLAN: Identify all the security risks, and be prepared to address them contractually.

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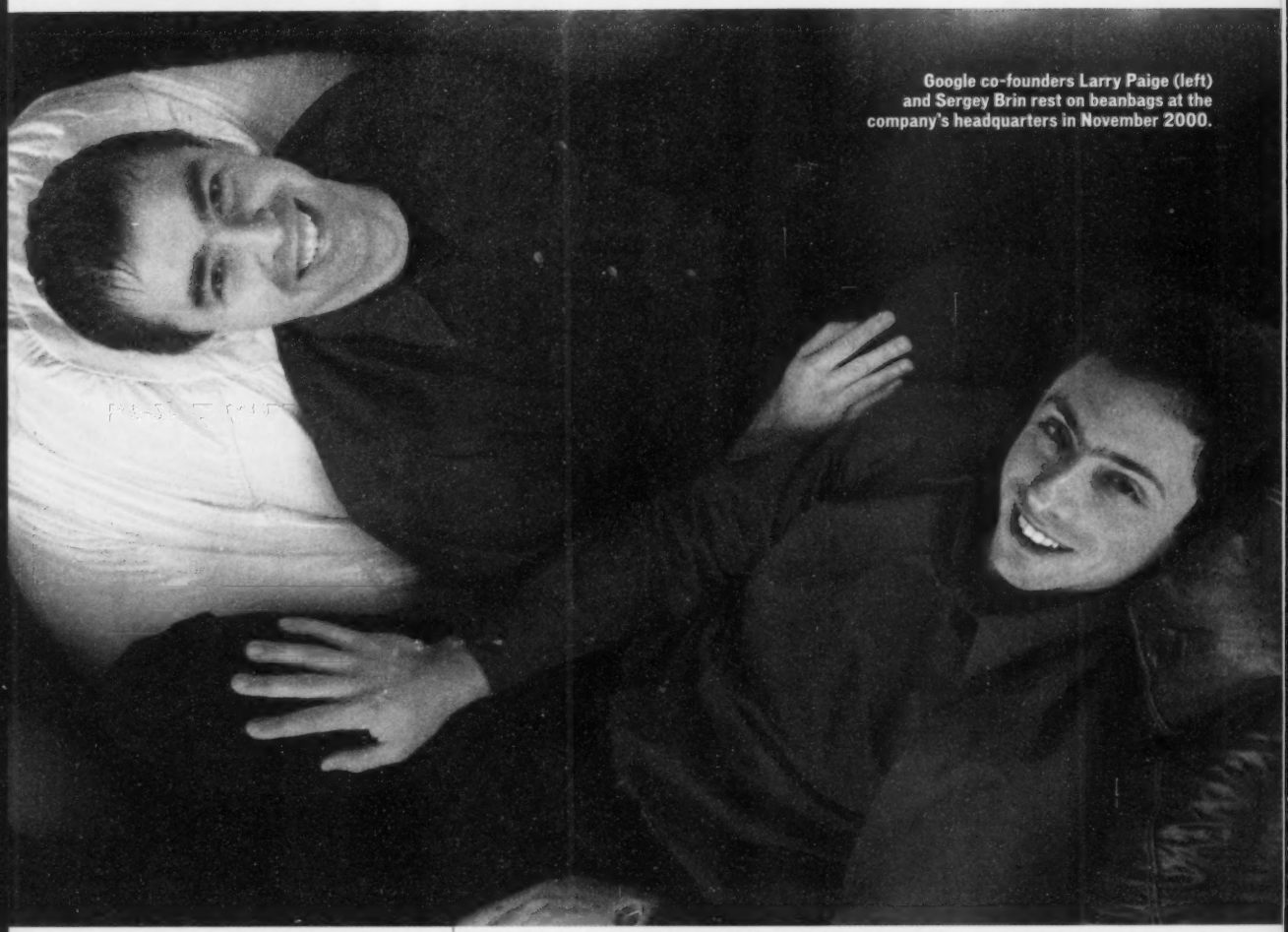

Google co-founders Larry Paige (left) and Sergey Brin rest on beanbags at the company's headquarters in November 2000.

Growing Pains for Google

At the 10-year mark, the company struggles to balance youthful anarchy with practical process.

BY ELIZABETH MONTALBANO

NOW THAT Google Inc. has reached its 10-year mark, the company is facing the cultural complexities and challenges that come with the transition from hip start-up to corporate giant.

In Google's early days, it was able to take Silicon Valley by storm because it was a tiny company with a big idea. Unencumbered by the corporate bureaucracy of larger businesses like Microsoft Corp., Google was able to build grass-roots support around its search engine and online advertising business model to grow quickly and nimbly into the multibillion-dollar company it is today.

That kind of fast growth and mega-success has a downside, however. The

Continued on page 30

AP PHOTO/RANDI LYNN BEACH

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Best Practices IN STORAGE

AWARDS PROGRAM

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Inspire the Next

Congratulations Award Recipients!

Storage Networking World proudly announced the results of the "Best Practices in Storage" Awards Program. This program honors IT users "Best Practice" case studies selected from a field of qualified finalists.

Honoree Award Recipients in each of the following categories were recognized during the Gala Awards ceremony at Storage Networking World in Dallas, Texas, on October 15th:

Innovation and Promise

LA Valley College, Los Angeles, California

Finalists:
- American Society of Health System Pharmacists, Bethesda, Maryland
- Joe Gibbs Racing, Huntersville, North Carolina
- Partners HealthCare, Wellesley, Massachusetts
- University of Illinois, Urbana-Champaign, Illinois

Planning, Designing and Building a Strategic Storage Infrastructure

Tasty Baking Company, Philadelphia, Pennsylvania

Finalists:
- AOL LLC, New York, New York
- East Carolina University, Greenville, North Carolina
- LandAmerica Financial Group, Glen Allen, Virginia
- Latin School of Chicago, Chicago, Illinois

ROI and Best Practices in Green Computing and the Data Center

Hilton Grand Vacations Club, Orlando, Florida

Finalists:
- Marina Medical Billing Service, Inc., Cerritos, California
- Priority Health, Grand Rapids, Michigan
- Quantcast, San Francisco, California
- Sybase, Inc., Dublin, California

Selecting and Deploying Storage Networks

CXtec, Syracuse, New York

Finalists:
- Air Force Center for Engineering and the Environment, Brooks City-Base, Texas
- Stanford University, Palo Alto, California
- UNISYS, Lima, Peru
- Weiss Group, Jupiter, Florida

Storage Reliability and Data Recovery

University of Texas at Brownsville, Brownsville, Texas

Finalists:
- Howard Rice Nemerovski Canady Falk & Rabkin, San Francisco, California
- The Mind Research Network, Albuquerque, New Mexico
- The Ohio State University - Office of University Communications, Columbus, Ohio
- ZirMed, Inc., Louisville, Kentucky

Thank you to our "Best Practices in Storage" Judges for SNW Fall 2008:

- Rick Bauer, SNIA
- Lawrence Di Gioia, City of Altamonte Springs
- Dale Frantz, Auto Warehousing Company
- Julia King, *Computerworld*
- William Kramer, NERSC
- Richie Lary, Lary.com
- Lucas Mearian, *Computerworld*
- Ron Milton, *Computerworld/InfoWorld*
- Ian Patterson, Scottrade
- Matthew, Reynolds, Howard Rice Nemerovski Canaday Falk & Rabin
- Chris Saneda, Virginia Credit Union
- Don Tennant, *Computerworld/InfoWorld*
- Ben Woo, IDC

Program Judges' Criteria

Judges evaluated and ranked the finalists in each category according to their substantiated storage networking solution attributes and achievements against a set of criteria such as:

- Financial return and measurable payback (returns on investment, assets, resources) through created/protected revenue opportunities or cost savings
- Strategic importance to the business
- Substantive customer impact (service, retention, acquisition)
- Positive impact on other business/organization units
- Addresses system and department interoperability issues and heterogeneous platform integration challenges
- Provides a strategic advantage to the business/organization while anticipating and accommodating the deployment of future storage networking solution initiatives
- Supports the efficient and reliable data, information and application sharing access between personnel, departments, divisions, etc.
- Addresses challenges of data, information and application security, ecovery, business continuity, etc.

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excitement of Google's game-changing technology and the almost collegiate culture that the founders fostered at corporate headquarters in Mountain View, Calif., made the company for many years the hot place to work. But in the past year, the image of Google's Silicon Valley nirvana has begun to show some cracks. Key members of its brain trust have left for other companies, and stories of employee dissatisfaction with the corporate culture are beginning to travel throughout the industry.

> **"As companies grow larger, it's more difficult to allow people to be creative.**
>
> **CRAIG NEVILLE-MANNING**, ENGINEERING DIRECTOR, GOOGLE INC.

MORE LIKE MICROSOFT

As Google ages, one of its main challenges is to continue to foster technology innovation and draw the caliber of talent that start-ups can attract. This will be increasingly difficult as the company, in both size and culture, begins to look more like a Microsoft or an IBM — behemoths over which Google once had an edge because it was different.

"Gravity affects all organizations and will inevitably affect Google," says Charles O'Reilly, the Frank E. Buck professor of management at Stanford University's Graduate School of Business.

The company is clearly feeling that downward pull. A little more than a year ago, Google began to experience the brain drain that comes when a start-up becomes an institution and many of its early stars cash out.

Key Googlers such as former CIO Doug Merrill and Sheryl Sandberg, former vice president of global online sales and operations, have left the company in the past year — the latter for Facebook Inc., to which some other key Google employees have also defected.

Then there was the child-care fiasco that made Google's executives question the sense of entitlement the company had created among employees, and how long Google could sustain it. Things got hot at a TGIF meeting — a weekly forum where Google's leaders present company news and answer employees' questions — when workers expressed concern that the cost of company-provided child care was going to nearly double.

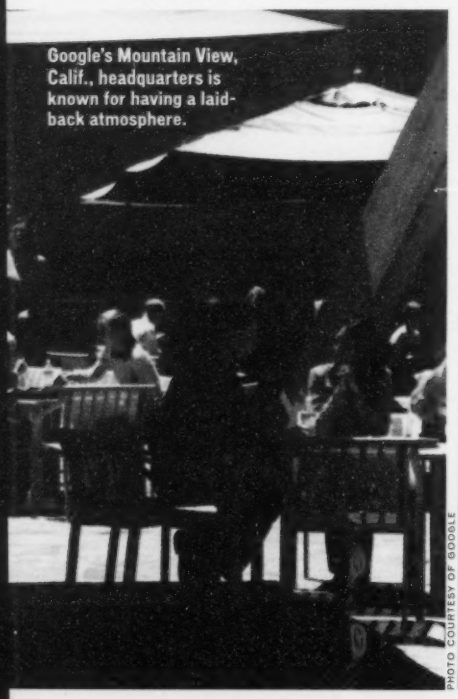
In response, according to published reports, Google co-founder and co-President Sergey Brin bristled about employees feeling a little too entitled to perks such as free bottled water and candy.

The meeting left some at the company thinking that their executives were beginning to feel the pressures of maintaining the culture they had created, insiders said privately.

Indeed, "the management challenges of running a 15,000-person organization are completely different from a 1,000-person firm," O'Reilly says. (Google has more than 20,000 employees worldwide now.)

People who have left the company recently say that they felt disposable and easily replaced. They also say that the long days and hard work — part of a culture in which many employees feel frowned upon if they leave at a reasonable hour — were not fully appreciated by their managers or Google executives.

To be fair, Google's woes aren't unique to the company. Many of them are the growing pains any start-up experiences when it expands as fast as Google has. And an atmosphere that has lured the best and the brightest with freebies and a laid-back vibe only complicates things.



Google's Mountain View, Calif., headquarters is known for having a laid-back atmosphere.

PHOTO COURTESY OF GOOGLE

Cultural Touchstones

Like many adolescents, Google is very self-absorbed. Its Web site is replete with cultural references such as these "10 things Google has found to be true."

1. Focus on the user, and all else will follow.
2. It's best to do one thing really, really well.
3. Fast is better than slow.
4. Democracy on the Web works.
5. You don't need to be at your desk to need an answer.
6. You can make money without doing evil.
7. There's always more information out there.
8. The need for information crosses all borders.
9. You can be serious without a suit.
10. Great just isn't good enough.

BAILING OUT

Cesar Mascaraque spent four years at the company as it transitioned from having 1,000 employees to thousands. He left early this year and is now European managing director at Ask.com.

Mascaraque says it was the expansion of the company that prompted him to leave. He prefers to work for a business as it transitions from start-up to growth company rather than working for a large corporation.

"Once the business is 20,000 people, I don't enjoy it," he says. "I like the day-to-day flexibility of being in a smaller company."

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Email Threat Protection

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Mascaraque says he was part of a team that worked on developing the processes and policies that would help Google run its business as a corporation rather than as a small company. While a business must set such policies in order to grow successfully, "the downside is you take away a lot of the creativity and the flexibility that a smaller company has," he says.

"There's nothing wrong or right about it; that's the nature of the beast," Mascaraque adds.

Rob Kniaz, who was a product manager on Google's AdSense advertising platform team, cited a similar reason for leaving Google in July, after having been at the company for four years. He says he missed the camaraderie of the early days, when "you'd walk into the cafeteria and know more than 85% of the people."

As the company grew and the people he had worked with in the beginning became more geographically dispersed, it became "harder to keep that

AP PHOTO/PAUL SAKUMA

Sergey Brin's comments about Googlers' apparent feelings of entitlement have caused controversy at the search firm.

The epoxy for the modern IT executive.

same level of excitement you had when it's you and your friends working late at night," Kniaz says. He is now a venture capitalist at Fidelity Ventures.

THE AUTONOMY ANGLE

Google is aware of the challenges to its culture as it grows, and it is doing its best to meet them, says engineering director Craig Neville-Manning.

"As companies grow larger, it's more difficult to allow people to be creative," acknowledges Neville-Manning, who was hired in 2000 when Google had only about 200 employees.

The key, he says, is to "give people autonomy" even as the company adopts more of a corporate structure and culture.

Google tries to do this by allowing teams working on certain projects the same creative and development freedom they might have if they were still working for a start-up, he says.

Neville-Manning cites Google's recently released Chrome Web browser beta and the Android mobile platform as examples of these types of projects. Those teams have "a pretty clear mission and have been given more or less carte blanche" to do what they need to do to achieve that mission, he says.

There are downsides to this attempt to emulate the start-up culture. Some former Googlers say that this kind of autonomy left them feeling directionless. Although they appreciated the ability to create their own projects and duties for their appointed positions, it was difficult to gauge their performance without specific direction or feedback from managers, they say.

This experimental approach will remain in place at Google, however, and the company plans to continue to tweak its organizational structure as it grows, Neville-Manning says. This inevitably will require a lot of trial and error, he acknowledges.

"Since we are growing so quickly," says Neville-Manning, "we've had to sit back every six months and redesign processes as they've become too unwieldy."

For example, when he was given the task of opening the first Google engineering site in New York in April 2003, the company let the engineers at the new site figure out what they would work on; they simply communicated with other engineers to ensure that they weren't stepping on anyone's toes.

As the company grew, however, "we had to rethink this," Neville-Manning says. Eventually, Google had to set up a global database of projects that gave engineering teams a view of what all the other teams were working on.

"It's really important to leave people with some degree of autonomy," says Neville-Manning, "but at the same time, you don't want duplication of effort, and you want to make sure people are communicating effectively."

So Google continues to struggle through its adolescent transformation. "The question," says Stanford's O'Reilly, "is whether they will deal with this in a productive way or do something foolish." ■

Montalbano *writes for the IDG News Service.*

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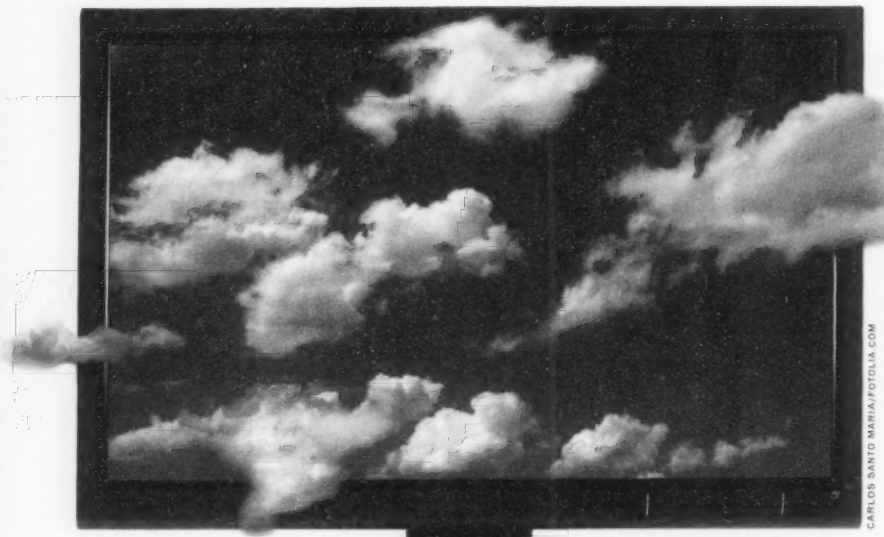

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High-Definition TV

Here's what it's all about — minus the marketing jargon. By Russell Kay

Definition

High-definition (HD) television refers to better-than-standard-quality, sharper pictures. How much better requires more terminology to decipher.

IN ANY newspaper ad for television sets, you'll see the term *high-definition* used with abandon, accompanied by numbers, letters and language designed to convince you that a particular item is the one you want. Let's decipher the HD marketingspeak one factor at a time.

■ **Standard definition (SD) vs. HD:** HD always looks better, but some HDTV are better than others. Moreover, the term *SD* is seldom used now. If it isn't labeled HD, it's SD.

■ **Analog vs. digital:** Television broadcasting uses analog signals whose frequencies vary smoothly. Analog will disappear in February 2009 and be replaced by more efficient digital television (DTV), which can fit more channels and signals into a smaller segment of broadcast spectrum. To view DTV on an older set, you'll need a special device or nonbroadcast service — cable or satellite — that converts digital broadcast signals to analog. Digital provides better pictures than analog, but it is *not* necessarily HD. However, HD is always digital.

■ **Widescreen vs. standard:** Older TV sets mimicked then-current movie screens, with a picture 1.33 times as wide as it was high. But most movies now use a wider format, often 2.35 times as wide as they are high. To present such movies on TV requires cropping or editing the picture or showing it with black bands on the top and bottom. This "letterboxing" preserves the intended format of the original movie but can make it look tiny on smaller TV sets. With HD and DTV, the industry has a new standard screen almost twice as wide as it is high (the actual ratio is 16:9). The new format means less compromise for movies, making editing or letterboxing less objectionable. In most situations, it also provides more image content. This is especially noticeable with televised sports.

■ **Plasma vs. LCD vs. projection vs. DLP vs. CRT:** These terms refer to how the TV set physically creates the image you see on the screen. Any of these technologies might also be HD, but without more information, you just don't know.

■ **Broadcast vs. DVD:** DVDs show standard-definition pictures but generally make them look better than they would on an SD broadcast. Newer DVD players use a conversion process to make an SD picture look almost as good as HD. Until early 2008, two incompatible formats competed for true HD on DVDs, but Sony's Blu-ray won the war while Toshiba's HD DVD lost. Blu-ray players are more expensive than standard DVD players, and standard DVD players can't play Blu-ray discs.

WHAT ABOUT THOSE NUMBERS AND LETTERS?

An HDTV spec sheet may boast 720i or 1,080p, but what do those numbers and letters mean?

■ **The numbers:** They refer to the theoretically best possible picture quality — the total number of pixel lines from top to bottom that the set can display.

When people first used the term *HD*, the technol-

ogy was pegged at 720 lines (thus 720i or 720p). HD displays a picture more clearly than SD, and marketers were quick to label their products HD. But true HD really starts at 1080 lines (1080i or 1080p); 720 might more honestly be called "HD Lite."

■ **The letters:** The *i* stands for "interlaced scanning," where only half of each video frame is displayed on the screen every 1/60 of a second. The set presents every other line of pixels from top to bottom, then in the next 1/60 second, it goes back and fills in the blanks. This works because the human visual system tends to remember what was there previously, so interlacing tricks the eye into thinking the picture is complete. This same persistence-of-vision phenomenon is what makes motion pictures, filmed at 24 frames per second, look continuous.

HD Radio

To further muddle the meaning of HD, there's also high-definition radio, in which stations broadcast digital audio signals that can be decoded only by special receivers. HD radio sounds better than AM or FM, and may even sound better than a typical CD. But at present, most HD stations also broadcast in normal analog mode, and there are no plans to replace AM or FM.

Not yet, anyway.

The *p* stands for progressive scanning. Here, the set paints the entire picture in sequence, starting at the top and going to the bottom without skipping anything. In the newest sets, this happens twice as fast, as in 1/120 second. The picture looks smoother, and action scenes look better than with interlaced scanning.

To compare the picture quality of TV screens with that of computer monitors, 720p is equivalent to a computer display of 1280 by 720 pixels, while 1080p is 1920 by 1080.

For the same number, *p* generally looks better than *i*, but you can't always tell the difference unless everything else in the viewing chain is optimized.

For example, depending on your equipment, even a 1080p set may show only 1080i unless you use a special, more expensive type of interconnecting cable called high-definition multimedia interface, or HDMI.

Currently, 1080p is the highest-quality picture broadcast or viewable. (Newer, higher standards will replace it, but not for several years.) You may not be able to see a difference between 1080i and 1080p, but if you're shopping for a new set, go for the *p*. Still, 1080 will always look better than 720, and both will look make SD look bad. But remember, your old VHS tapes will look pretty fuzzy on the new set. And on a smaller set (15 inches or less), you may never see the difference between 720 and 1080. ■

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Kay *is a* Computerworld *contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.*

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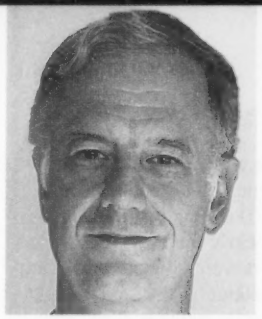
■ OPINION

Bart Perkins

Customer Dis-service



I RECENTLY BOUGHT a new PDA. The salesperson demonstrated Outlook synchronization and other features. At home, my calendar, contacts and tasks functioned properly, but message synchronization wasn't working. Unfortunately, the manual is written for messaging specialists and is unintelligible technobabble to mere mortals.

After 30 minutes of "trial and swear-or," I called technical support, beginning a journey into the abyss of customer dis-service.

Eight levels into the interactive voice response (or IVR, which should stand for "infinite voice-mail rat race") system, I had provided my security code four times and my phone number three times. (Doesn't the phone company have Caller ID?) I finally reached a technical specialist, who asked for my phone number and security code — again. When I explained my problem, he said, "I don't know, let me check the manual."

Unfortunately, he had the same manual and was also a mere mortal. After 20 minutes of the blind leading the blind, I was asked to hold for an expert. Fifteen minutes later, I was disconnected.

I called back through the same irritating IVR and security process. (Is this really necessary? How many people steal phones and then call customer service?) I was finally connected to another support representative, who had no record of my prior call. I repeated the problem and was eventually passed to a "Level 2" expert. We were making progress when my call was dropped again.

Five calls and two hours later, I gave up. A friend who manages PDAs for a major corporation finally solved the synchronization problem for me.

But that wasn't the end of my nightmare. My first PDA bill was significantly higher than quoted, including several mysterious "one-time" charges. The billing department rep couldn't decipher my charges either. He promised to call back within 15 minutes but never did. Four hours later, I tried again, without resolution.

Only after threatening to switch carriers was I introduced to a "problem-resolution specialist," who discovered that someone had entered a discount on the wrong line, which had resulted in multiple erroneous charges.

■ The phrase 'customer service' shouldn't be an oxymoron.

Disgusted with these experiences, I called a competitor. Its customer service department was *closed*! Apparently, its well-trained customers don't have problems, ask questions or make purchases on Sundays.

Being a glutton for punishment, I tried to add a range extender to my wireless network. Five support representatives attempted unsuccessfully to make it work. Two barely spoke English. None could find the setting described in the manual. Eventually they gave up, assumed the device was defective and shipped me a new one. (Ironically, a subsequent rep used a different configuration method — the original hardware may not have been defective after all.)

Nearly everyone has similar stories. Colleagues with incomprehensible manuals report being charged for product capability questions. One was even charged for presale product information! One recalls a computer retailer's reps who couldn't explain the terms in the company's own Internet ad.

These dis-service experiences span health care, banking, retail, insurance and cable TV. One frustrated entrepreneur's response was to start a company in order to have access to competent technical staffers who could maintain his PC.

Poor customer service is extremely costly. Unhappy customers usually tell eight to 15 friends about their bad experiences. Customer dis-service interactions also squander the organization's time and money. (The manufacturer of my range extender undoubtedly lost money when technical support invested six hours, then replaced my $65 device.) Moreover, frustrated customers often take their business to competitors.

The phrase *customer service* shouldn't be an oxymoron. It has always been a valuable customer-retention tool, and it's increasingly becoming an important market differentiator. Corporations and IT organizations that choose to cut corners in customer service do so at their peril. ■

Bart Perkins *is managing partner at Louisville, Ky.-based Leverage Partners Inc., which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.*

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■ Q&A

David Foote

The CEO and chief research officer at IT workforce research consultancy **Foote Partners LLC** evaluates the fallout from the turmoil in the financial sector.

How many IT pros have lost or are in serious danger of losing their jobs because of the Wall Street upheaval? People lose or quit their jobs for all sorts of reasons, so estimating how many have or will become unemployed based just on the turmoil in the financial services sector is tricky. But compared to overall direct job losses, only a small portion will be IT workers.

That's encouraging. In general, how will IT jobs be affected? Clearly, the pressure on corporate expenses has gotten more acute, especially in the banking and financial services, auto, airlines, and housing industries. Bank of America and the other beneficiaries in the recent investment bank acquisitions will of course be consolidating operations and analyzing their IT workforce bloat, with labor reductions expected further down the road. Embattled Wall Street firms will start high, shedding high-salaried, midlevel IT management first, and fast. But in their general IT populations, there are such rich skill sets. I think many IT pros, if cut, will find new jobs, though at a lower salary, in a different industry and maybe not locally.

If anything, more companies are now examining mission-critical vs. non-mission-critical IT spending. IT workers in the former will be safer, including those supporting daily operation of core networks, strategic applications, disaster recovery and security. For financial services and other regulated industries, add data processing, compliance systems and key risk-management systems.

For non-mission-critical projects and initiatives, unless the payback period is 12 months – or even less, considering the general mood of pessimism out there – you will see slowdowns and outright IT spending holds affecting IT jobs in the hardest-hit industries.

But in broad terms, IT executives remain cautiously optimistic. About 40% of companies have cut their 2008 IT budgets, which may increase a tad. U.S. IT spending projections for next year will shift from slightly above to below this year's 5.5% rise.

Bottom line, considering the lag time between business decisions and direct labor-market effects, we won't see much IT workforce reduction or jobs being outsourced this quarter, except perhaps those that are bankruptcy-related. But starting next year, thousands of permanent IT professionals will be incrementally cast off from employers large and small. Many will find new employment, join the ranks of the "partially employed" or return to school. This isn't a big deal, though, considering that the overall size of the U.S. IT workforce is approximately 4 million. Some independent consultants may suffer, but the diversified, global IT services vendors will suffer only minimally and will continue to hire to fill demand. Job losses overall will be industry-driven, surgical and well thought-out.

There's still demand for IT pros with certain skills. What are some of the safer ones? In addition to areas I just mentioned, our research indicates that companies will be hiring and retaining architects, business analysts, project and vendor relationship managers, process and security experts, a variety of customer-facing jobs, and specialists in ERP and enterprise applications areas, especially SAP. Regarding skills, our research points to security, storage/SAN, data mining, database and data management, virtualization, and mobile operations talent as remaining in high demand. Several point skills such as AJAX, PHP and .Net will be strong as well.

How difficult will it be for the newly unemployed to remain in the IT workforce? The good news is that since the last recession, employers have shifted more of their IT operations to third-party providers and consultants, and CIOs have become shrewd fiscal disciplinarians. So this time we aren't going to see across-the-board IT bloodletting and IT pros leaving the profession in droves. It's still about playing the odds as far as targeting the right skill specialization, geography and industries. Consulting remains a great place for experienced or hot-skilled workers to direct their careers.

– JAMIE ECKLE

Nontech Skills Key In Today's Job Market

Employers will continue to fiercely compete for IT workers who blend business, industry and customer knowledge with purely technical skills. Finding the right combination of nontechnical abilities (below) and technical knowledge in a single "impact" worker is a critical success factor, says David Foote. "But the one quality that everybody wants is the ability to execute again and again, especially under tough deadlines and a certain amount of organizational discomfort."

- Business analysis; enabling analytical skills (business technology)
- Functional-area knowledge, specific business process/operations knowledge
- Industry-specific experience
- Collaboration, team-building
- Project management, especially global
- Strategic thinking, planning
- Problem-solving
- Oral and written communications
- Ability to lead and motivate
- Negotiation skills
- Ethics and tolerance

SOURCE: FOOTE PARTNERS LLC IT SKILLS PAY AND DEMAND TRENDS, Q2 2008 (WWW.FOOTEPARTNERS.COM)

PAGE COMPILED BY JAMIE ECKLE.

Scalar USA- IT consulting firm located in IL has multiple openings for IT professionals to serve multiple clients throughout U.S. Specific skill sets needed include: .Net developers JO-010, J2EE developers JO-020, Oracle EBS JO-030, Oracle Developers/ DBA JO-040, SAP Basis Architect JO-050, & Quality Assurance Analysts JO-060. Positions require B.S. degree in related field & exp. w/ specific skill sets. Some sr. level positions available. Some positions require grad. degrees. Competitive salaries. Must be willing to travel/ relocate. Send resume to: jobs@scalarusa.com. Refer to specific JO# for consideration. Applicants must have authority to work permanently in U.S.

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Request for Provision of Services for Website Upgrade

The Barbados Tourism Authority (BTA), a statutory agency responsible for marketing Barbados as the premier globally competitive year-round warm weather destination, operates the website, www.visitbarbados.org, which forms an integral part of its marketing communication strategy.

The BTA is inviting vendors to submit proposals for the provision of services for its website, which is now in its fourth year of operation:

Responsibilities include:

1. Upgrading and managing the website including:
   a. Design modifications
   b. Updates
   c. Maintenance & monitoring
   d. Online marketing

2. Implementation and management of an e-commerce solution for the website.

Vendors are requested to submit proposals which will outline:

1. The services to be provided and the associated costs.
2. How they will work with the BTA in the provision of these services.
3. Proposed contracts for the services to be provided.

Requests for copies of the detailed information can be sent by email to charlesw@visitbarbados.org and should be titled *Request for Website Upgrade Information.*

Closing date for submissions is 12:00 Noon
On **Monday, November 10, 2008.**

Shark Tank

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

Delivered as Promised

Consultants are working on an intranet for a big health care outfit, and one of the requirements is to validate each log-in against a comprehensive employee database. Problem: The consultants are finished, but the database hasn't even been designed yet. And it won't be a quick job to merge 20 sources of employee data. "All the usual database challenges are there – scrubbing out duplicates, purging expired data, correcting inaccurate data and so on," says a pilot fish on the consultant team. Finally, a database admin steps forward to take charge. "There will be no bad data in my database," he tells management. Months later, the database is finally ready, and consultants immediately start testing their application against it, using a subset of valid employee data. "Result: The application comes up with zero hits on every single query that's run," reports baffled fish. He calls the database admin. What could the problem be? fish asks. Is the test data we used out of date? "No," replies database admin. "You aren't getting hits because there is no data in the database. Remember, we wanted to make sure there was no bad data – so we're starting with an empty database." Sighs fish, "There's no bad data because there's no data. A plan so simple, and yet so brilliant!"

Let's Take This One Step at a Time

Support pilot fish gets a call from a user whose computer won't boot. "Going through the basics, I quickly determined that it wasn't a boot problem, but probably something a bit more basic," says fish. Is the computer plugged in? fish asks. Yes, user tells him. Is the power strip turned on? Yes. Does the power indicator turn on when you press the power button on the computer? No. Did you shut down your computer in the usual way the night before? No, user says, I just unplugged the computer. And why would you do that? asks fish. User: "There was smoke coming out of the computer, and it quit working." Fish: "So let me get this straight. Yesterday, the computer was on fire and you didn't call. Today, first you actually plug the thing back in, and *then* you call because you can't get it to boot?" User: "Oh . . ."

How to Do It

The mainframe's response time has been slow all day when this pilot fish gets a call. Arriving at the user's desk, fish sees her pounding on her keyboard with her fist. Fish: Why are you doing that? User: "I was told by your fellow IT worker that the harder you hit the Enter key, the faster it got to the mainframe to process the data and apply the check." Says fish, "I had no answer except for her to get a new keyboard with a bigger Enter key."

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Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement PM40063731. **CANADIAN POSTMASTER:** Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A 7C9. Computerworld (ISSN 0010-4841) is published weekly; except for a single combined issue the first two weeks of July and the last two weeks of December by Computerworld, Inc., 1 Speen Street, Box 9171, Framingham, Mass. 01701-9171.

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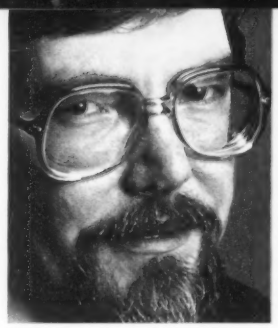
■ FRANKLY SPEAKING

Frank Hayes

Rules for Users



IN NOVEMBER, a federal judge in New York will decide whether to fix a user's spreadsheet error. Does that sound like overkill? Well, the judge is in charge of the biggest bankruptcy in U.S. history, and the spreadsheet lists hundreds of assets involved in that bankruptcy.

Now does it sound more like a federal case?

Here's what happened: On Sept. 15, giant investment bank Lehman Brothers collapsed into bankruptcy. Three days later, lawyers for Barclays Capital were furiously working to finish up an agreement to purchase some of Lehman's assets in time to meet a bankruptcy court deadline.

Those assets — contracts that were worth money to Lehman — were listed in a spreadsheet. One of the spreadsheet's columns indicated whether Barclays wanted the assets with a "Y" for yes and "N" for no.

A Lehman exec sent the spreadsheet to Barclays' law firm barely four hours before the deadline. But it had to be converted from Excel to a PDF to be submitted to the court. An associate lawyer glanced at the spreadsheet, saw nothing but Y's in the "Do we want it?" column, and sent it to a law clerk with instructions to cut out certain columns and turn it into a PDF.

You can see what's coming, can't you?

The clerk cut out the columns, then saw that some of the rows were formatted oddly. He reformatted the spreadsheet into nice, even rows and converted the result to a PDF, then sent it back to the associate, who posted the file without even looking at it.

No one noticed that the new version was 179 rows longer than the original. In fact, 20% of the items in the spreadsheet — the ones with an "N" — had been hidden automatically using an Excel function. When the clerk cut out the "Do we want it?" column, they reappeared.

Oops.

■ Keep it simple. Don't make assumptions. And never, ever trust tech more than you really have to.

The Lehman-Barclays deal closed on Sept. 22. The mistake wasn't discovered until Oct. 1, nine days later. Now Barclays is hoping the court will let it off the hook for millions of dollars in assets it never intended to buy.

It's easy for IT people to feel smug when we hear a story like this. Some power user used a fancy feature to pretty up a spreadsheet. Another user made assumptions and gave explicit instructions to a third user, who followed those instructions to the letter.

If only these users had been more tech-savvy — or had consistent standards for using Excel, or had a better quality-control process, or had taken time to verify the data — they wouldn't have had this problem. Right?

Except that the spreadsheet was created at one company and sent to a competitor's law firm, so forget about consistent standards. Quality control? This was a one-off spreadsheet for a one-off deal. Time? It didn't exist.

Actually, just spot-checking the finished list against the original spreadsheet would have caught the foul-up: 22 of the 70 items on the first page weren't supposed to be there. (Yes, I counted them myself.)

In other words, being a lot *less* tech-savvy — or at least a lot less trusting of technology — could have saved the day.

Look, we've put powerful tools in the hands of our users. We can't warn them about every risk. But we can remind them early and often of some basic principles of using technology: Keep it simple. Don't make assumptions. And never, ever trust tech more than you really have to.

Following any one of those rules could have avoided a court date to clean up this mess.

And once we've gently drummed those principles into users' heads, maybe we'd do well to apply them ourselves. ■

Frank Hayes *is Computerworld's senior news columnist. Contact him at frank_hayes@computerworld.com.*

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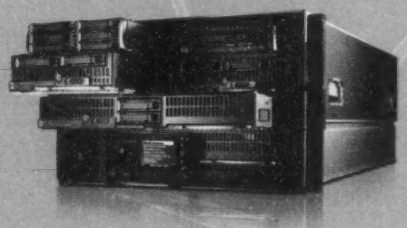

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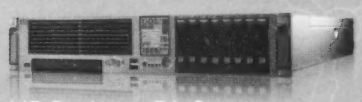

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